THE

PROGRESS

OF

MAN AND SOCIETY

The beſt knowledge of Man, is Man.

657/18

TRUSLER.

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PROGRESS

OF

MAN AND SOCIETY.

ILLUSTRATED

By upwards of One Hundred and
Twenty Cuts.

OPENING THE EYES, AND UNFOLDING THE
MIND OF YOUTH GRADUALLY.

By the Rev. Dr. TRUSLER, Author of HOGARTH MORALIZED, PROVERBS EXEMPLIFIED, &c. &c.

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The beſt knowledge of Man, is Man.

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INDEX.

A

Angling 135
Air 214
Air Balloon 217
Aritificial Light 229

B

Boyiſh Sports 11
Boys under Inſtruction 18
Bleaching 102
Barter 120
Bear Hunting 131
Butcher 137
Baker 141
Brewer 146
Brickmaker 157
Builder 159
Battle 254

C

Children often in Danger 5
Childiſh Sports 8
Childiſh Amuſements 14
Currier 112
Commerce 120
Courſing 132
Cook 137
Cabinet Maker 162
Carpenter 159
Cooper 166
Coal Mine 175
Coachmaker 198
Caſcade 225
Camp 259

D

Dancing 24
Driving 27
Deformities 69
Diſeaſe 76
Death 76
Dreſs 105
Deluge 242

E

Earth 208
Earthquake 210
Engagement at Sea 260
Execution 239

F

Fencing 34
Funeral 81
Farming 93
Flax Dreſſer 98
Fiſhing 134
Fire 211
Fountain 224
Famine 248

G

Gardening 123
Glaſs Blower 170

H

Horſemanſhip 57
Hearing 60
Husbandry 92
Hunting 121
Horſe Mill 172

I

Inſanity 66
Inundation 243
Imagination, effects of 252

L

Lace Maker 103
Laundreſs 104
Laplanders 106
Leather Dreſſer 111
Law, Ancient 233
——Modern 234
Man, an infant. 1
Muſic 31
Man, as he is 38
——in his Muſcles 42
——Blood veſſels 45
——ſeen Within 48
——in his Bones 51
Married Life 72
Man in a ſtate of Nature 84
——in a Savage State 87
——in a Civilized ſtate 89
Market 121
Mining 151
Maſon 160
Mills 172

N

Natural Light 226

O

Oratory 21
—— 79

P

Potter 168
Paper Maker 176
Printer 179
Painting 191
Pump 224
Peſtilence 251
Pillory 238
Plunderers, and Robbers 235

R

Riding 27
Rope Maker 182
Rope Dancing 54
Reaſon 63
Reaping 99

S

Stage Plays 23
Swimming 36
Senſes of Man 58
Seeing 59
Spinning 99
Sempſtreſs 103
Shoemaker 114
Shopkeeper 115
Shooting 132
Salt-pans 149

Smithery 154
Stone Cutter 160
Ship Building 184
Ship 186
Sculpture 188
Scating 195
Shipwreck 215
Storm 261
Sagacity of Animals 257
Siege 257

T
Tumbling 56
Taſting 62
Taylor 109
Tanner 111
Traps 128
Turner 165
Travelling on the ſnow or ice 193
———by land 196
———by Sea 202
———by Canals 205
Tempeſt 245

U
Unskilful Riders 28
———Drivers 30
Vintage 141
Volcano 211

W
Weaving 101
Waſhing 104
Woollen Draper 115
Water Mill 173
Windmill 173
Water 218, 224
Water Spout 222
Whirl-Pool 222
War 254

PREFACE.

THE idea of this work, is taken from the Orbis Pictus *of Commenius, publiſhed in the year 1657, in folio, at Amſterdam. In was written by him in Latin, and High Dutch; but, this is all. The public who may have ſeen this work, will find, that the idea only is borrowed, that the ſubjects are very differently treated, and the whole very much improved. The* Orbis Pictus *is merely a vocabulary, or, nomenclature; but, my deſign, herein, is to give youth a tolerable idea of every thing about them, and to cheat them into thought by amuſement.*

Not being the deſigner, or engraver, of the pictures, I may ſay, without vanity, that they are admirably executed, the characters highly preſerved, and, that they would not diſgrace a Hogarth. I would have had them engraved on copper, but, from a wiſh to ſell the book at a low price, for the benefit of children but even in wood, as they are, they are what *a man of taſte, may look over, and examine with pleaſure, both for the deſigns, and execution.*

Such then is the deſign of this work; it is an epitome of all that is in the world, and ſhews, not only the formation of Man, but the Progreſs of Man in Society.

With ſuch a book, and in ſuch a dreſs, may I hope to take the attention of young folks and draw them into knowledge? To addreſs an infant mind, on ſuch ſubjects as this book contains, would have been idle; as a number of things here ſet forth, are paſt their comprehenſion. I have addreſſed my language to that age, when the mind begins to expand itſelf; that is to a boy or girl, nine years old; have not deſcribed the pictures too minutely, but left them to diſcover the reſemblance themſelves, convinced, that ſuch diſcovery, will keep the impreſſion ſtronger in the memory.

The book, though written for a child of nine, may be given to children of ſix years of age, and will doubtleſs pleaſe, and make them familiar with the ſubject, and if they are occaſionly aſked, what this or that thing is, in a little time, they will ſee nothing but what they will know how to name, and will name nothing which they cannot ſhew.

Let the child firſt look over the pictures; theſe

theſe as they follow each other in gradation, will preſently ſhew him the Progreſs of Man; aud, if he pauſes, and aſks any queſtions concerning them, lead him to the place where it is ſpoken of, and deſcribed, and make him read it, referring to the pictures as he reads. Next let him get the general ſubject of each picture by heart, ſo as to tell what it is, as ſoon as he caſts his eye on it; this will keep the ſubject in his memory, will make him wiſh to be better acquainted with it, and lead him to ſtudy it in the deſcription; and, having read the deſcription more than once, he ſhould be aſked his idea of the picture at ſome future time. Thus will the knowledge of things they ſeem to repreſent, be painted in the infant mind, and dwell with him through life; he will, as he grows up, communicate his ideas to children of his own age, and they will thus teach and inform each other. Such ſubjects in this book, as are paſt the comprehenſion of certain ages, they ſhould not be troubled with at firſt, but ſhould be omitted, till they have learned the reſt.

In ſhort, as knowledge conveyed by the eyes makes a greater impreſſion on the mind, than ſuch as is conveyed by words, pictures are the moſt intelligible books that children can have. The vignette in the title-page, repreſenting *an old man giving a boy a proſpect of the world and bidding him* ſee with his own eyes,' *is a juſt emblem of the utility of this work. A ſight of things will teach him more in an hour, than a deſcription would in a month.*

Having treated the ſubjects differently at times; to prevent the trouble of turning to the cut, to which I allude, I have given another of the ſame kind, which accounts for the duplicates of ſome few of the prints.

When children have a proper comprehenſion of the ſubjects here treated, I would recommend to their peruſal my Compendium of Uſeful Knowledge, 2d. edit. *pr.* 3s. 6d. *where theſe, among many others, equally improving, are deſcribed more accurately, and more at large.*

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* *To teach children morality and a knowledge of life, I have expatiated, or paraphraſed, ſuch of our Engliſh Proverbs, as tend to this purpoſe. They are illuſtrated by deſigns drawn from human life, and ſo well executed, as to bear the ſtricteſt examination; and, though cut in wood, the characters are no*

way loſt. It is a very proper book to amuſe and inſtruct youth, and the price viz. 3s. *half bound, will hurt no one.*

I could have wiſhed to have reduced the price of this volume, below what is is, but the numerous cuts ſo well executed, the deſigns made for them, and the fine paper on which it is printed, has together been ſo expenſive, that it will require the ale of many thouſands to re-imburſe me. But, if the volume is accepted by the public, and anſwers the end in view, that of improving the riſing generation, my utmoſt wiſh will be gratified.

PROGRESS
OF
MAN AND SOCIETY.

PART I.

MAN, IN AN INFANT STATE.

AT the creation of the world, the firſt Man and Woman, as the firſt animals of every kind, male and female, were made, by God, in their full grown ſtate. Man was endowed with the gift of underſtanding and memory, and the power of articulation, or ſpeaking diſtinctly. All that we conceive they were at a loſs for, was to make themſelves underſtood by each other; but a little time got rid of this difficulty.

The firſt child this man and woman had, were born in the common courſe of nature, as at preſent. Man comes into the world an infant, more helpleſs than many of the brute creation. A calf, a lamb, a colt, as ſoon as born, will get upon its legs, and find its way to the teats of its dam; but infant man would go out of the world, almoſt as ſoon as he came into it; that is to ſay, would die, almoſt as ſoon as born, if it was not ſor the humane aſſiſtance of others; not the aſſiſtance of its mother, for ſhe, at this time, is as helpleſs as her child, but the friendly aid, perhaps, of a ſtranger, who lends the labouring mother aſſiſtance, wraps up the infant in ſoft and warm clothing, and, by an induſtrious attention to the mother, enables her, in a little time, to nurſe her infant herſelf.

Here we ſee how much beholden we are to the foſtering, tender hand of our fellow-creatures; ſtanding in need of their humanity, to enable us even to enjoy our exiſtence.

Providence has provided the ſame kind of nouriſhment for the infant, as for the young of animals, that is, the milk of the mother; a ſort of liquid food that nature ſtrains from the blood, and is well adapted to the tender age of a child.

The mother now takes the charge of nurſing her infant, upon herſelf; ſhe carries it in her arms, ſuckles it, feeds it, cheriſhes it, and inſtructs it; whilſt the father, anxious for both mother and child, is procuring a maintenance for them abroad. He not only toils and works, to maintain them, whilſt he lives, but is doubly induſtrious, to ſave money, and lay by a proviſion for them, ſhould it pleaſe God to ſhorten his life, and remove him from them.

It is twelve months before the child begins to ſpeak, and then it ſpeaks but little, and imperfectly; and two or three years, before it walks alone, and then it totters. All this time it is protected by its father, and nurſed in the boſom of its mother. Many are the anxious cares of the parents for the health of their little-one, and many a ſleepleſs night do they paſs, in ſtudying its good and its happineſs.

Surely children ſhould have a proper ſenſe of gratitude for this care, and ſhould never forget the obligations they are under!

Before they are twelvemonths old, they try to get upon their feet. Some are able to do this ſooner than others, but moſt are able to ſtand firm at eighteen months old, and to totter about by the time they are two years old. At this age they are all attention, take notice of every thing, and obſerve with their eyes, though they cannot make remarks with their tongue.

At two years of age, or earlier, they begin to imitate their mother or their nurſe's voice; and will articulate or ſpeak ſome, ſhort words. All language or ſpeech is learnt by imitation, and what a child often hears, it will preſently repeat. This makes it learn the language of its nurſe. If the mother, and thoſe about it, ſpeak Engliſh, the child will ſpeak Engliſh alſo; if they ſpeak French, the child will do ſo too. This is the reaſon that children bred up in a country, ſpeak the language of that country. They ſhould hear, therefore, nothing they ought not to learn.

A child would walk ſooner than it generally does, if it knew the art of ſtanding upright and firm upon its feet: but after it acquires ſtrength to ſtand, it has to learn how to balance itſelf, and avoid falling. Many contrivances there are, to ſupport an infant on its legs, and to enable it to put one foot before another; and as, in acquiring this knowledge, it has frequent falls, ſoft bandages are bound round its head, to protect it from bruiſes; for a child will be three or four years old, before it knows how, in falling, to ſave its head, by its hands.

All this care is the province of the nurſe. When it has been ſuckled for ſome months, and its appetite ſtrengthens, it is taught to eat.

The animal creation, that is, brute beaſts, are able to protect themſelves at two years of age, and at four, are generally full grown: man alone is helpleſs at ten, needs protection, and is not full grown till twenty.

Could young folks be made ſenſible of the great anxiety parents feel for the preſervation and happineſs of their children, that no accidents happen to them in their early age, they would not require to be taught gratitude: but ſuch is the misfortune, that they do not acquire this ſenſibility, till they become parents themſelves. By this time, probably, they have loſt their own parents, and have only to lament, for the remainder of their lives, that they have not fathers and mothers to protect and to cheriſh.

CHILDREN OFTEN IN DANGER.

WAS it not for the continual attention of thoſe who have the care of children, they would not only be ever in miſchief, but, injure their conſtitutions, break their limbs, and endanger their lives; they would eat all ſorts of traſh, play with hurtful weapons, and climb, at the riſk of their necks: and all this, not from a miſchevious diſpoſition, but, from ignorance, and a playful turn. There is a perverſeneſs in infant minds, that makes them long for ſuch things, as are kept from them; and, like monkeys, they will do, what they ought not to do. Many a child, through want of care in its parents, has eaten food, that has injured its health, brought on ſickneſs, and interrupted its growth; many a one, in the abſence of its nurſe, has fallen into the fire, and ſcorched itſelf ſo, as to deſtroy the features of its face; many a one, by climbing, has broke its arms and its legs, and, been ever after a cripple; and, many have loſt their eyes, and many more, their lives.

Some of theſe deformities of nature, which I ſhall by and by ſpeak of, have been the conſequence of the want of ſuch care; crooked limbs, broken backs, and diſtorted features; ſuch as are exhibited, in the print below.

WE have here a proof of what has been advanced. One, is catching hold of the hot tea-pot; another, of the boiling kettle; and, a third, is pulling down a loaded gun. Such things ſhould not be put in the way of children; but, if they are, children ſhould never be left alone. As their reaſon is not ſufficiently ſtrong to guide and protect them, they ſhould never be out of the ſight of ſome careful perſon, leſt they ſhould fall into the fire, or tumble out of a window.

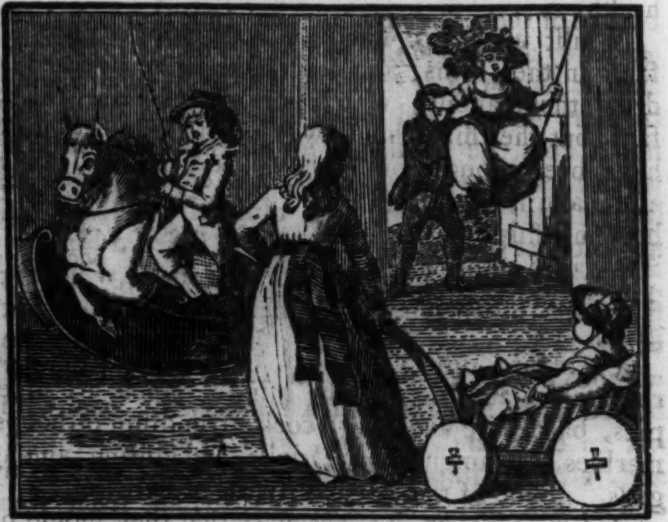
Such, then, being the neceſſary care of nurſes and parents, if young folks find themſelves well grown, and enjoying their health, and the proper uſe of their limbs, they cannot be too thankful to thoſe who brought them up. Even the poor, are attentive to the health of their children; but, the more opulent, are as careful of their beauty.

As a handſome youth, whether male or female, naturally attracts the notice of every one, and a fine perſon, is a ſtrong prepoſſeſſion in favour of a man, at firſt ſight; parents, ſenſible of this, will give their children every advantage which nature has beſtowed upon them. They will add to the beauty of their teeth, by taking out ſuch as are ſhapeleſs; to the beauty of their faces, by innoculating them, and thus guarding them againſt the ravages of the ſmall-pox; and, to that of their complexions, by keeping them to regular hours, and wholeſome diet. And ſhall not a child be thankful, for all this care; ſhall he, when he arrives at manhood, and enjoys theſe bleſſings, forget to whom he is obliged for them, and neglect that hand, that ſo tenderly foſtered him?

Let him look into the world, and he will learn, from the misfortunes of others, to ſet a proper value on his own enjoyments; he ſhall there ſee, one without a leg; another, without an arm; one, with bowed legs; another, with a hump-back; one, without an eye; and, another, with a diſfigured face: and, all theſe imperfections, in general, with many others, are owing to accidents, ariſing from want of care, in their nurſes and parents. If, as I have obſerved, we are free from theſe blemiſhes; if we are proportionably formed, and enjoy the full uſe of our limbs and bodies, it is incumbent on us, not only to be thankful to God, who has preſerved us, through life, from thoſe misfortunes, which others labour under; but, to be grateful to thoſe, under whoſe eyes we were brought up; that is, be dutiful to our parents, and affectionate to our nurſes. There is a natural link, that ties us to our parents; and, the bond of gratitude ſhould attach us to our nurſes.

We ſee this, in opulent families: men, when grown up, be they ever ſo rich, never forget or deſert their old nurſes; but, kindly protect them, do them all the good offices they can, and make them all the grateful returns in their power.

CHILDISH SPORTS.



THERE is nothing ſo trivial in life, but has been ſtudied, and made to anſwer particular deſigns. Even in the ſports of children, there are good ends in view.

The infant mind is too tender to be always bent to application: it requires relief. For, as a bow, kept bent, would loſe its ſpring, and not be able to caſt the arrow, ſo the mind, always kept to one thing, would grow weary, and tired of its ſtudy, loſe an inclination for that thing, and, with difficulty, be brought to it again. Parents and teachers, therefore, in their wiſdom, and knowledge, of the human mind, ſuffer the attention of children, to be diverted at times, and give them ſundry things, to amuſe them: but, even in ſuch diverſions, confine them to ſports, that tend to their health, and teach them leſſons in future life.

Moſt of theſe ſports are calculated to anſwer good ends; to exerciſe the body, ſtrengthen the limbs, raiſe the ſpirits, give activity, and contribute to health.

Whilſt unable to ſtand or walk, nurſes carry infants in their arms, and carts have been invented, to draw them about; which not only exerciſes the infant, but,the child who draws ſuch cart. Hobby-horſes have been thought of for boys, at a more advanced age; and ſwings, for girls. The one, leads on to horſemanſhip; and the other teaches us to preſerve a ballance, and keep our feet, upon all occaſions. Theſe are amuſing exerciſes, adapted to either boys or girls, at a very young age. But,

There are others peculiar to ſex and age, that require the attention of the mind. Theſe are nine-pins, battledore and ſhuttlecock, trundling of hoops, marbles, &c. among boys; dolls, and viſiting, among girls. Some of theſe I ſhall ſpeak of hereafter.

As boys grow up, it is neceſſary that they ſhould be inured to difficulties; taught to avoid danger, and become uſeful in ſociety. To this end, they learn to jump, run, ride, ſwim, and defend themſelves. Hence the introduction of leap-frog, cricket, dancing, fencing, &c.

Uſe, is ſecond nature: what we are accuſtomed to do, in youth, we generally execute well, in manhood. It is for this reaſon, that boys are put out to learn trades and profeſſions, at fourteen years of age. They are bound, for ſeven years, to ſuch trades; and, from this long continuance in the practice of them, at the age of twenty-one, that is, when they come to be men, they are able, from uſe and habit, to carry on ſuch trades, themſelves; for the benefit of their families, if they have any; and, to make themſelves uſeful in ſociety, that every individual may earn his living, each for himſelf; and not owe his ſupport, to the labour of another.

Indeed, ſuch is the nature of the human mind, that, provided it is not over ſtrained, it always gains ſtrength, by exerciſe and habit. From the ſame principle, the legs of a dancer, are ſtronger, in proportion, than his arms; becauſe, his legs have been moſt exerciſed, or uſed; and, the arms of a waterman, that is always pulling at the oar, are ſtronger, in proportion, than his legs; becauſe, they are more exerciſed. Gentlemen, bred up in indolence, are not able to work, and the leaſt fatigue is a pain to them; but, working-men, accuſtomed to labour, from their youth, find rather a pleaſure in it, than a pain; and, are never more unhappy, than when having nothing to do.

Children, then, even in their amuſements, when left to themſelves, ſhould be governed by their parents and teachers; and, not think it a hardſhip to be directed, by thoſe, who know beſt what ſports are moſt adapted to their conſtitutions and minds; what will be of moſt uſe to them, in life; and which attended, with moſt good, and leaſt danger.

BOYISH SPORTS.

IN the invention of ſports and amuſements for boys, parents not only conſider, what will exerciſe the body, but employ, and exerciſe, the mind.

So natural is it to man, to wiſh well to himſelf, and provide for his own wants, that, we ſay, Self-preſervation, is the firſt law of nature. This care for oneſelf, leads men to encroach on the property of one another, and, to covet ſuch things, as another enjoys. Inſtead of working for themſelves, they want others to work for them, and are apt to ſnatch, or take, all within their reach. Men, therefore, have entered into, and formed, ſocieties among themſelves, in order to protect the fruits of their own labour and contrivance, from being taken away from them. Such ſocieties, when extended over a kingdom, are called ſtates; and, that one ſtate may not plunder, and rob, another, each has found it neceſſary to keep an army of ſoldiers, to defend themſelves;

men bred up to arms, and, of courſe, ſuch as know how to uſe them.

But, of what ſervice is the knowledge of arms, if a man is frightened at a little danger; if he is a coward, and afraid to uſe them. To inure, therefore, or accuſtom the infant mind, to brave, or oppoſe, danger, if he ſhould be called on, in life, ſo to do; (for, when an enemy is expected, every man is called to arms; and, a man of courage and natural bravery, will overcome, and conquer, a dozen cowards) I ſay, then, to accuſtom boys to the uſe of arms, and give them a taſte for warlike enterprizes, Parents will ſuffer, and encourage them, to amuſe themſelves in this way; for, though they may never, in life, be called together by the ſound of the fife, or drum, or, may never be expected to carry a firelock; yet, the very aſſociating with boys of ſuch a caſt, the very idea of war, often in the mind of youth, will inſpire reſolution, and lead them to be brave, when they become men. It will teach them to encounter the dangers of life, be they of what kind they will, with reſolution and fortitude, and enable them to protect themſelves, in any caſe whatever. The drum, and the fife, will keep up their little ſpirits; the regularity of marching, will teach them order; and, the power of a regiment of ſoldiers, acting as one body, will ſhew them the advantages ariſing from the union of a well-regulated ſociety.

To the ſame end, alſo, has the play of ſkittles and nine-pins been invented; which repreſents a body of ſoldiers, to be overcome, or thrown down, by the dexterity, or contrivance, of him who attacks them. This diverſion requires thought, ingenuity, and ſtudy. By bowling the ball, or throwing it, at one particular pin, or ſtriking it, in a certain direction, and with a certain degree of force, that pin will fall againſt the one next it, and thus tumble down the whole; whereas, without ſuch attention, it would, perhaps, overturn but one, or two; and, he that beats down the moſt, at one throw, is the clevereſt at the game.

So, a general, in the field of battle; if he watches his opportunity, attacks the enemy, in a particular quarter, and, with a certain degree of ſkill and force, he will be more likely to overthrow them; though the enemy's army ſhall be more numerous than his own, than, if he was to attack them, with a greater body of men, at random, without any ſkill, or warlike contrivance.

Beſides, ninepins, as marbles, will ſhew boys, that, one body, ſtriking another in certain parts, will be reflected, or ſent off, in particular directions, ſo as to anſwer a purpoſe. This kind of knowledge is further increaſed, by an improvement on ſuch amuſements, in advanced life, by bowls, and by billiards; which, as I obſerved, whilſt they exerciſe the body, no leſs occupy, and improve, the mind.

Dancing, tennis, cricket, bowls, billiards, and ninepins, are ſuch amuſements as, even men are not aſhamed of. The mind of man requires relaxation, at times; ſhould not, always, be kept to buſineſs; and, though ſuch amuſements may be eſteemed, by ſome, boyiſh; experience, and a knowledge of the human frame, teach us, they are requiſite and neceſſary.

CHILDISH AMUSEMENTS.

EACH ſex, by the wiſe direction of parents, have a ſpecies, or a particular kind, of amuſements, adapted to them. We have ſeen thoſe invented for boys; let us next ſee, what have been contrived for girls.

Amuſements, calculated for children, I have obſerved, tend to inſtruct them in more advanced life. The female ſex are to be occupied, or employed, chiefly, in domeſtic concerns; in the care of families, nurſing and bringing up their chidren; whilſt the men, fathers of thoſe children, are abroad, ſeeking proviſion for them, and, protecting them.

It is natural, then, for mothers to teach their girls, how to dreſs, nurſe, and take care of an infant. For this purpoſe, dolls are made, to reſemble children, and girls are taught, to make clothes for theſe dolls, dreſs and undreſs them, handle them, nurſe them and take care of them; and children will enter ſo far into this pleaſing employ, as to imitate their mothers and nurſes, in every thing, and practiſe all they ſee practiſed by them.

Surely, there cannot be a more uſeful or innocent amuſement for girls; and parents will encourage it, until their daughters are almoſt marriageable; that, when they become mothers themſelves, they may know how to act by their own children.

Girls, then, I truſt, will ſee the propriety of this ſort of amuſement, and the indelicacy of entering, with boys, into maſculine, or boyiſh, diverſions. How does it look, to ſee a girl playing at marbles, climbing up trees, bandying of balls, riding on hobby-horſes, romping, and jumping, with boys, in all their rude, and rough amuſements! It is a diſgrace to the ſex, and tends to deſtroy that delicate ſoftneſs, which conſtitutes female beauty.

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GIRLISH AMUSEMENTS.

AS girls advance in life, and their perſons are poliſhed by thoſe graces, which a dancing-maſter teaches, they are inſtructed, or, ſhould be inſtructed, in the mode of paying, and receiving, viſits. Were mothers, and governeſſes, to attend to this more than they do, it would have a wonderful effect on the manners of the female mind. It would ſoon enable them to ſtep forward in ſociety, teach them ſociability, and, to bear their part, with credit, in polite companies.

Impreſſed with this idea, the painter has given us a ſcene, where two young ladies are ſuppoſed to be paying a morning viſit, to ſome young folks, of their own age; denoting, that early riſing is as neceſſary to health, as education; giving a long day, for the various occaſions of it. They are here imitating thoſe graceful introductions in faſhionable life, that mark the gentlewoman, and give thoſe firſt impreſſions, that ingratiate them with their acquaintance.

I would recommend to all governeſſes of ſchools, to introduce theſe little converſations between young ladies nearly of the ſame age, which will remove that *mauvaiſe honte*, or baſhfulneſs, that takes too great a hold of young people unuſed to company. If, at theſe times, the miſtreſs, or ſome ſenſible perſon for her, would ſit down, with three or four of them together, give them a ſubject, within their knowledge, and lead them on to converſe on that ſubject, ſetting them right, when they are wrong; it would do them more eſſential ſervice, render them more ſociable in life, and open their ideas more, than all their reading, or getting by heart, would effect.

Till ſuch time as thoughts naturally offer themſelves, and they can dreſs their thoughts in eaſy language, ſuch converſations ſhould be written for them, and each ſhould learn their reſpective parts, by heart, and repeat, or exhibit them, on certain days, as performers, on a ſtage, exhibit a play. By thus learning a variety of converſation-parts, on different ſubjects, and delivering them, with eaſe and grace, they would, in time, be able to offer their own ſentiments, without any help; and, a young lady, at all times, inſtead of being able to talk of nothing but her dolls, or the affairs of the nurſery, would like a ſenſible and rational woman, bear her part in converſation, and attract the attention of her rational acquaintance.

Young ladies could not amuſe themſelves better, or more profitably, on a viſit, than by looking over, together the prints in this work, making remarks on what they ſee, communicating their ideas to each other, and thus improving, and informing, themſelves.

BOYS UNDER INSTRUCTION.

THE mind of man, is that power, or faculty, which diſtinguiſhes him from brute beaſts, which have no underſtanding: it is a gift of God, to man, to enable him to enjoy himſelf and ſociety, and make himſelf uſeful to his fellow-creatures. God has given him the uſe of ſpeech, to communicate his ideas, and his wants, to mankind; to learn, from others, what he is at a loſs for himſelf; and teach that, in return, which he happens to be beſt acquainted with.

Speech is acquired, by imitation; the memory ſtores up what it hears, and the tongue delivers, or repeats it, as we find a reaſon. Some men have, naturally, more knowledge than others; turn their thoughts to particular branches, or, parts of ſcience; and, by continual ſtudy, make themſelves maſters of them. Hence are they enabled to teach others. Some are capable of explaining the appearance of the ſun, moon, and heavenly bodies; others, can give a very good account of the earth we live on ; can deſcribe the ſeveral countries of the earth, and its natural productions ; and ſo on. But, from the difficulty of acceſs to, or getting at, ſuch learned men, the art of writing was invented, to communicate our thoughts, on paper ; and, this introduced the art of reading ; for, of what uſe would writing be, if, men were unable to read ?

Writing enables men to convey their thoughts, and wiſhes, to each other, though they are many miles apart ; and the poſt, eſtabliſhed in every country, to carry letters, from place to place, at a ſmall expence, is one of the greateſt conveniencies in life. It will carry our good wiſhes to friends, at times, when we cannot go to them ; and, ſince the extenſion of trade and the introduction of land, and ſea-carriage, will procure us, from thoſe friends, in any part of the world, ſuch uſeful things as we could not otherwiſe obtain.

Men of learning, wiſhing to teach mankind, what they themſelves knew, and which, otherwiſe, might not be generally known, wrote down their knowledge on paper : but, as writing many copies of the ſame thing, takes up more time, and labour, than one man can ſpare, from his neceſſary occaſions, it gave riſe to the invention of printing ; which is a very expeditious, quick, and cheap, method of writing. This has introduced books ; and, from a number of books that have been printed, in all languages, and, on all ſubjects, he that can read, and underſtand what he reads, may learn every ſcience, in his cloſet ; and have the opinions of learned men, in all ſciences, brought home to his own door ; and, at an expence that he may command.

But, to reap theſe advantages, he muſt be able to write and read For this, boys are put under the inſtruction of maſters, who make it their buſineſs to teach. Hence, then, the uſefulneſs of going to ſchool, and, the neceſſity of learning what we are there taught, if we wiſh to have more underſtanding, than thoſe, whoſe parents cannot afford to pay for their learning.

Education makes man reſpectable in life, opens his ideas, and extends his proſpects, beyond the reach of his eyes; and, there is no having the benefits of education, but, by an early application, going to ſchool, when young; ſtudying, when at ſchool; and ſtoring up, in our memories, what we there learn.

The boys before us, with their books in their hands, are entering their maſter's chamber; and, by their reſpectful bows, and honeſt countenances, ſhew us their humility, before a man of ſuperior knowledge to themſelves; and tell us, that their manners, as well as their minds, are under inſtruction. For parents, in improving the mind of youth, do not omit to faſhion the body, and, endeavour to give it that elegance and manner, that diſtinguiſhes a well-bred man, from one that is low-bred. This is the employ of a dancing-maſter, whoſe ſtudy is, to give grace and eaſe to the perſon.

I ſhall have occaſion, hereafter, to enter into all theſe branches of education; of courſe, will only obſerve, at preſent, that, though children think it cruel, to be deprived of amuſements, and to be ſent to ſchool, and, againſt their inclinations, be made to learn, and whipped into knowledge; there will come a time, when they will bleſs their parents, for the attention, and expence, thus beſtowed upon them, and wonder at their own unwillingneſs then to learn.

ORATORY.

THE powers of ſpeech are alſo improved by education. Every human faculty gains ſtrength, by exerciſe. As the legs of a dancer will grow ſtronger than his arms, by the greater uſe he makes of them; and, as the arms of a waterman, by conſtant uſing, will grow ſtronger than his legs, which he does not ſo often exerciſe; ſo will the mind of man, by repeated exertions, and by a habit in ſpeaking, be able to expreſs itſelf, with more readineſs, and fluency, than ſuch as do not accuſtom themſelves in this way.

As fine paintings will captivate the eye, ſo will fine oratory faſcinate and charm the ear. God, having endowed men with the gift of reaſon, to check, and keep his unruly will in ſubjection; if we are deſirous of having people act, agreeable to our own wiſhes, we ſhould, firſt, bring them over to our way of thinking; and this is beſt done, by convincing their minds, with arguments, and perſwaſions.

Such, then, is the art of oratory. A man, whoſe mind is well informed, by ſtudy; and whom education has taught, to ſpeak with elegance and propriety; if bleſſed, by nature, with a good memory, and an harmonious voice, may work wonders with it. His hearers will liſten to him, with attention; will hang on his words, and be carried away, as it were, by his breath.

We ſee, and feel, the effects of good oratory, in a fine preacher, an able ſenator, and a good tragedian; but, it is not on theſe formal occaſions only, that the tongue ſhall captivate. The charms of good language, elegant phraſes, and happy thoughts, are ſeen as well, in common converſation; and we are in raptures with thoſe, who ſpeak gracefully, and deliver their ſentiments, with propriety.

Young people, therefore, will find it their intereſt, in life, to avoid all thoſe imperfections in ſpeech, which diſguſt, and tire, their hearers. The ſtammerers, the liſpers, the quick ſpeakers, the drawlers, the hemmers, the ſpitters, the hawkers, are as tireſome, and diſguſtful, as thoſe who uſe affected words, and phraſes; words, unknown in any language; vulgar, and ingrammatical expreſſions.

And, if they ſtudy to *ſpeak*, with elegance, they ſhould be equally ſtudious, to *write* with it; for, he who ſpeaks, and writes, with vulgarity, is always ſuppoſed to keep low company. A gentleman may be diſcovered, not only by his manners, but, by his ſpeech, and, by his diction; that is to ſay, by his writing; and, he who would be well received, in life, ſhould accuſtom himſelf to ſuch things as pleaſe, and give general ſatisfaction.

I cannot, under the head of Oratory, take a more favourable opportunity, of ſpeaking of the ſtage; which is a pleaſing amuſement, and tends to ſoften, the manners of the people. That no improper play ſhall be exhibited, at the theatres; ſuch as would corrupt the morals of mankind ; it is wiſely ordained, by government, that every piece ſhall firſt undergo an examination ; and nothing be performed, but what is approved of, and licenſed.

PLAYS generally performed, are ſuch as tend to ridicule the follies, and expoſe the vices, of the age. Comedies, are lively pieces, that cauſe laughter ; and tragedies, ſerious ſtories, that excite tears, and compaſſion ; and the ſubject matter is, generally, ſome piece of hiſtory, or ſome ſcenes in real life, diſplaying the manners and the cuſtoms of the people. Farces are, generally, ludicrous ſcenes in life, heightened in the repreſentation.

There are ſo few good players, ſo few, cloſe imitators of nature, that, where a player has uncommon talents, or a ſinger, an uncommon fine voice, they are paid, from 500*l.* to a 1000*l.* pounds, a year, or more.

The ſcenery, by mechaniſm, and fine painting, is now brought to ſuch a degree of perfection, that a ſpectator may readily conceive himſelf, at the foot of large mountains, and, on the banks of ſpacious rivers, all within the ſmall compaſs of a few ſquare yards; and, the mind ſhall thus be carried to the remoteſt parts of the world, by the ſhifting of a ſcene, or the dropping of a curtain.

DANCING.

WHOEVER has taken notice of the difference, between the aukward gait of the country clown, and the elegant manners of the man of faſhion, will be thoroughly ſenſible of the advantages acquired, by learning to dance. As the mind of young folks is like blank paper, on which we may write any character we chuſe, ſo is their frame and bodies ſuſceptible of almoſt any impreſſion, we pleaſe to make on them.

A certain motion of the body, a particular ſtep, a turn of the wriſt, or bend of the head, ſhall give an almoſt inconceiveable elegance to the form, and diſtinguiſh

diſtinguiſh thoſe who have received this education, from thoſe who are unfaſhioned and untaught.

We may ſee this, viſibly, in diſciplined ſoldiers: take a clod-hopper, from the plough, who ſtumbles, as he walks, and, whoſe limbs ſeem ſo unhinged, as ſcarcely to belong to him: make a ſoldier of him; put him under diſcipline, or inſtruction, for three months, and you will not know him again. He will loſe all his ruſtic aukwardneſs, hold himſelf up, walk firm, on his feet, and, be twice the man he was. From being accuſtomed to ſtoop, he will ſtand erect; and be, in his appearance, two inches taller, than he was, three months before. Take notice, of a mob of undiſciplined men, and compare them, with a regiment of ſoldiers, and there will be no occaſion to point out the difference. See alſo the manifold difference, between the children of the wealthy, and, thoſe of the poor.

So it is with people, in common; the pride, of ſome young ſolks, will induce them to imitate the manners of thoſe, who have been well taught, and, make it unneceſſary for them, to learn. But, in general, boys and girls are ſo careleſs of themſelves, and, ſo indifferent about the appearance they make, that, learning to dance, is a neceſſary part of their education. See how graceful the young lady, dancing, in the plate before us, appears, to what the others do. She moves, with eaſe, and elegance; whilſt the others, turn in their toes. An aukward ſtiffneſs is viſible in the man; and, the handſome girl, behind, is disfigured, by a poke of her head, and, an uncouth carriage of her perſon.

It is a pity, but young people were more ſenſible of this; for, if they omit to learn this faſhionable accompliſhment, whilſt young, they will repent, when grown up: it will, then, be too late to learn; the body and limbs, will then have acquired a habit, they cannot alter; and, they will never go into good company, but their own unfaſhionable manner will put them to the bluſh. Unhappy at not appearing, as others do, they will labour to imitate them ; and, the pains they take, in ſo doing, ſerves only to make them more ridiculous, as is evident in the man here dancing.

All perſons are ambitious of being thought to keep good company. They ſhould, as early as poſſible, then, ſtrive to get rid of aukward habits, and imitate the manners of the better claſs of people. When we ſee a man well bred, and polite, we know he has been well educated, ſuppoſe him to keep the beſt company, and, are ambitious of his acquaintance : but if, on the contrary, we find him ill bred, and clowniſh, we know, he has been ill brought up, and, ſuppoſe him to herd with the lower claſs of people : and, as we naturally judge of a man, by the company he keeps, we are afraid, and aſhamed, to be ſeen with him, leſt we ſhould be thought, as vulgar as him.

As there is nothing takes with mankind, more than elegance of figure, and ſoftneſs of manners, dancing is one of the firſt accompliſhments we ſhould acquire. It will give us courage, through life, and relieve us from that baſhfulneſs, that is too often the bane of our good fortune.

I will take this opportunity, to mention the tricks, and habits, which young people are apt to learn ; and which, when once learned, they, ſeldom get rid of through life. It is rather foreign to the ſubject of dancing ; but, tending to render us inelegant, deſerves our notice, under this head. By tricks and habits, I mean, biting the nails, pulling the lips, grinding the teeth, ſcrewing up the mouth, lolling out the tongue, waddling, hawking, and ſpitting, and a thouſand others. Theſe are, all, ſuch abominable practices, as not only makes a man ridiculous, but contemptible; and, if he values himſelf, he will be thankful, to any friend, that will remind him, and, aid his endeavours, to get the better of them.

RIDING, AND DRIVING.

THERE is not, in nature, a more uſeful, or more beautiful, animal, than a horſe, well trained, and well broke in; nor, a more unruly animal, where we have not the command of him: and, horſemanſhip is now reduced to an art, that requires teaching; and practice, to be perfect in.

Riding is an exerciſe very pleaſant, and, very conducive to health; and, there is as much grace, and elegance, in riding, as in walking, and dancing. A gentleman is as much known, by his accompliſhments in the one, as in the other. A fine horſe, well taught, is all life, elegance, and activity; and, he who learns to ride, knows how to ſit ſafe on his back, put him in all his motions; and, keep him perfectly under command. It does not require ſo much ſtrength, in a rider, as confidence; and, a horſe, not knowing his own ſtrength, if he fears his rider, is, generally, gentle: but, it is neceſſary that he ſhould fear him, and know, that his rider is capable of managing him.

A good rider, then, mounts, and diſmounts, walks, trots, and gallops, with ſafety; and, avoids all accidents an unſkilful rider is liable to.

Whilſt one, unaccuſtomed to riding, is thrown from an unruly horſe; dragged, in the ſtirrup; and, his brains daſhed out againſt the ſtones; or, in paſſing a gate-way, has his legs jammed againſt the wall;

the ſkillful rider keeps his ſeat, without either fear or danger; and, enjoys the uſe of a beaſt, whoſe ſervices he would otherwiſe be deprived of.

Horſes are deſigned, for draught, as well as the ſaddle; that is to ſay, they are broke in, to draw a carriage, as well as, to carry a rider; and, ſuch countries as are not bleſſed with horſes, are obliged to have recourſe to other animals, for the ſame purpoſe. The Tartars ride upon oxen; and, the Laplanders are drawn by rein-deer. In many parts of England, farmers draw their ploughs and waggons with oxen; but, theſe are not near ſo tractable, and expeditious, as horſes.

Travellers, on horſeback, will go a journey of one hundred miles a day; and, hunting, in purſuit of their game, will gallop, at the rate of fifteen miles in an hour, and this, with great ſafety: they will, on horſeback, ſwim acroſs a river, ſcramble over a bank, or, leap over a gate; and that, without the leaſt injury to themſelves, provided they have a knowledge in horſemanſhip: but, without ſuch knowledge, they always ride, at the riſk of their necks. Horſemanſhip, then, is a branch of education.

And, as in riding, ſo in driving: a ſkilful driver, will manage four horſes, in a carriage, with reins, with as much eaſe, and ſafety, as one horſe; whilſt one that is unſkilful, will run over a poſt, overturn the carriage, and deſtroy, both it and himſelf; for, horſes are not endowed with underſtanding ſufficient, to be left to themſelves.

In ſhort, knowledge, and care, is neceſſary in every thing we undertake: with it, we are likely to act, with ſafety, and advantage; without it, we are expoſed to danger, and diſadvantage. As a good rider, or driver, preſerves his horſes, keeps them in due order, and makes them ſerviceable in life; ſo, a a wiſe man, bridles his temper, governs his paſſions, and keeps them, in proper ſubjection. If they are ſluggiſh, and inactive, he ſpurs, and whips them on; if, too vehement and wild, he checks them, curbs them, and holds them in. Thus does he gain, the maſtery of himſelf; and is not liable to thoſe accidents in life, that ariſe from ungovernable paſſions; which, if left to themſelves, or, indulged to exceſs, will, like unruly horſes, become headſtrong, run away with their owner, and do him, irreparable miſchief.

MUSIC.

AS painting was invented to captivate, and charm the eye, ſo, muſic was contrived to pleaſe, and raviſh the ear; for, as the eye is delighted, with a beautiful arrangement of colours, ſo, the ear is enchanted with a combination of harmonious ſounds. The uniſon of different inſtruments, of various tones, and the ſeveral notes of muſic, harmonized, and united, in a concert, produce the ſame effect on the ear, as the harmonious blendings of different colours, in light and ſhade, do upon the eye. They excite ideas in the mind, and repreſent abſent objects, to the imagination, as preſent. As a certain diſpoſition of light and ſhade, will, through the medium, or interference, of the eye, give us an idea of human paſſions, and extenſive proſpects, ſo, will a judicious combination of ſounds, by the channel of the ear, fill the mind, with refined ideas, tender feelings, and, exalted notions, of warlike enterpriſes, triumphal entries, and celeſtial bliſs. In a word, as painting operates on the eye; ſo does muſic, on the ear.

Now concerts are made up, of a variety of inſtruments; ſome are ſounded by the breath, as wind-inſtruments; and others, by ſtriking them, as ſtrung-inſtruments; and, theſe being all tuned alike, will, when performed on, produce very harmonious and enchanting ſounds. By a certain method of writing, good muſical compoſers, who are well acquainted with the effect of each inſtrument, will readily mark down a piece, that, being performed by certain inſtruments, in parts, ſhall, altogether, form delightful harmony.

The performers before us, are playing, one, on a harpſichard; one, on the violin; another, on the violoncello; a fourth, on the German flute; a fifth, on the hautboy; and a ſixth, on the French-horn. The laſt three, are ſounded by the breath; and, a lady is ſinging. There are a variety of other inſtruments, not here introduced; ſuch as organs, baſſes, clarinets, trumpets, baſſoons, and kettle-drums. Some calculated to play ſoft muſic; and others, martial tunes. Violins, flutes, piano-fortes, and the like, are, generally, made to produce ſoft ſounds; hautboys, French horns, fifes, drums, and trumpets, martial ſounds. Theſe laſt, are in uſe in armies; and are played on to inſpirit the ſoldiers, and give them courage.

The effect of ſounds, upon the ear, is wonderful: there are ſome, that will draw tears; and others, that will almoſt madden; and the effect of ſound, upon the human frame, cannot be more notorious, than, that certain diſagreeable noiſes, will ſet the teeth on edge, ſuch as, the filing of iron, and, the grating of two harſh ſubſtances, one, againſt another. On the other hand,

> "Muſic hath charms, to ſooth the ſavage breaſt."

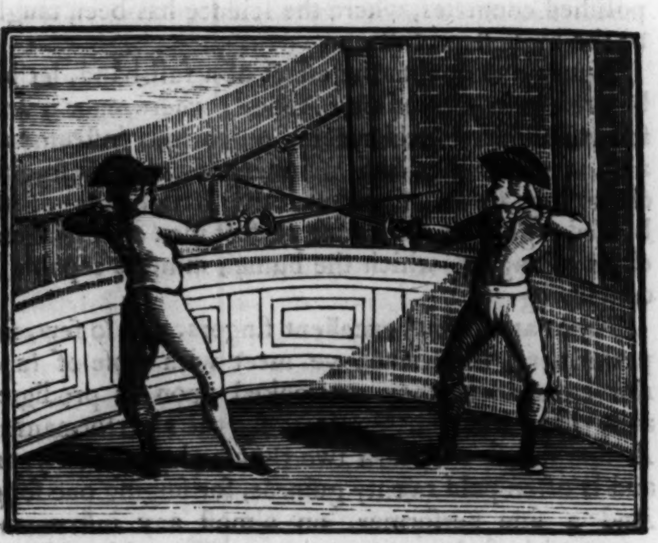
It will ſtill a raving mind; lull even anger to reſt; and, compoſe the heart, for ſolemn exerciſes; hence, the introduction of organs, into churches. If ſuch be its effects, no wonder it is ſo much encouraged in poliſhed countries, where the ſcience has been taught, to the higheſt perfection.

If any one doubts the effect of a full band, let him be preſent in Weſtminſter Abbey; where, once a year, ſeveral hundred performers, on various inſtruments, and, three times the number of chorus ſingers, chaunting forth, together, the hallelujahs of the bleſſed; give us the moſt perfect idea of a heavenly choir of angels, which the human mind is capable of concieving.

There are ſo few, excellent ſingers, and ſo few, fine performers, that, when we meet with thoſe of ſuperior excellence, they are looked upon as prodigies, and, have very large prices, for their performances. A fine ſinger will earn two thouſand pounds a year; and is often paid twenty guineas, for ſinging one ſong. And a fine performer, on almoſt any inſtrument, meets with ſuch encouragement, as enables him, in a few years, to lay by a handſome independence.

Thoſe who perform on any inſtrument, for hire, are called muſicians: thoſe, who compoſe muſic, for ſuch men to play, are called compoſers, and, from this thorough knowledge of muſic, are conſidered, as men of ſcience, and gentlemen.

FENCING.



AMONG other branches of education, that of fencing, to a gnetleman, is not the leaſt neceſſary. It gives him grace and manlineſs, and enables him to defend himſelf, when attacked. Such is the malevolence and revenge of ſome men, that they will purſue the perſon that affronts or injures them, with the utmoſt virulence; and ſuch the wickedneſs of others, that, from envy and avarice, they will attack the wealthy, and rob them of their property. By learning to fence, which is the ſcience of the ſmall-ſword, a man may defend himſelf againſt ſuch attacks, and ſtand the chance, not only of ſaving his life, but his property. For he that is maſter of this art, and can handle a ſword, is able to ward off any blow that can be made at him.

The cuſtom of countries has made duelling faſhionable, though it is ſinful, and contrary to the principles of our religion, for no chriſtian ſhould be bloodthirſty, and meditate the death of another; but the pride of being thought courageous, and the fear of being branded with the name of coward, has occaſioned many gentlemen to go out and fight in defence of their honour, when one or other of them has met his death, on the ſpot. To be enabled to defend themſelves on ſuch occaſions, gentlemen who wear ſwords, learn how to uſe them, and he who is beſt acquainted with the ſcience of defence, ſtands the beſt chance of killing his antagoniſt.

But independent of this uſe in fencing, many learn to fence, to acquire grace and elegance of perſon. It teaches a man to hold his head up, and carry himſelf well; it ſets him firm upon his feet, gives him ſtrength of arm, opens his cheſt, is good exerciſe, and tends greatly to his health. For this purpoſe gentlemen practiſe fencing with foils or ſmall-ſwords, with blunt points, that if they touch one another, it may not be attended with danger.

Cudgeling is the practice of the broad-ſword, where inſtead of puſhing and lunging at your enemy, ſo as to run him through the body, with the broadſword you ſtrike, as with a ſtick. The cavalry, or horſe-ſoldiers, uſe this weapon, and are taught to brandiſh it in the air, and ſtrike their enemy over the head, or limbs. When this art is practiſed with ſticks, it is called cudgeling, and at moſt country-fairs, the peaſants are very expert at it. Its uſe is, to guard off a blow given by a ruffian, with a ſtick; and ſuch perſons as know how to uſe a cudgel well, may defy the ſtrongeſt arm, either with a bludgeon or a cutlaſs.

Such is its utility at times; and hence it becomes a neceſſary part of every gentleman's education.

Self-defence is the firſt law of nature, and though no man is juſtifiable in attacking, or ſeeking the life of another; yet the love of life induces us all to ſtand up in our own defence, and thus to take away the life of him, who attacks the life of us.

SWIMMING.

AS more than one half the globe, is covered with water, if man could not convert this, alſo, to his uſe, as well as other things, then, God, with reſpect to us, would have created the waters, in vain. But, the underſtanding of man, has led him to ſearch, even the bottom of the deep; to travel over, its ſurface; and, make his way, through the water itſelf.

There are animals, to which, God has made the waters a proper element; that is, ordained them to live, in ſuch water; as fiſh, and a certain kind of living creatures. Men, and the beaſts of the field, were deſigned to live, on land; but, that they might eſcape the danger of the water, and not be drowned, in caſe they ſhould, accidentally, fall therein; he has given them the gift of ſwimming, or ſupporting themſelves in the water, for ſome time; that they may receive aſſiſtance, from others, time enough to ſave their lives.

Animals, if thrown into the water, will naturally ſwim, the firſt time; without any kind of teaching. A horſe, a cow, a dog, and the like, will ſwim, ſufficiently to ſave its life, if not too far from the ſhore. But man, whoſe fear, on ſuch occaſions, is his greateſt obſtacle, requires uſe, and practice, to teach him.

Boys, who live by the ſea-ſide, from conſtant dabbling in the water, become accuſtomed to it, and will ſoon learn, themſelves, to make their way through the waves, and, are thus ſeldom in danger of being drowned: but, thoſe who live at a diſtance from the ſea, can only learn to ſwim, from bathing in rivers and ponds. Some learn, by lying down, in the water, on corks, that buoy them up; and others, by attempting to float, in ſhallow places.

Bathing, indeed, is ſo conducive to health, and, ſwimming ſo neceſſary to thoſe, who are bred to a ſea-faring life, that, boys are encouraged to learn to ſwim, and dive, which is ſinking, and continuing, for ſome time, under water, and which is eaſily to be acquired, by holding the breath. If, therefore, perſons accuſtomed to ſuch exerciſes, chance to fall into deep water, they are not afraid, but, collect themſelves, hold their breath, till they riſe to the ſurface, and will then, ſwim aſhore. Nay, there are perſons ſo expert, that they will undreſs themſelves in the water, and, thus get rid of thoſe encumbrances, which, from becoming heavy, by wet, would tend to ſink them.

Having now ſpoken in favour of ſwimming, it is neceſſary that I ſhould point out, to young folks, the danger of going into the water without ſome experienced perſon with them, or ſome boat at hand, to take them in, if they need aſſiſtance. Many an incautious lad has been drowned; but, if he has a careful perſon in his company, one who can ſwim well, and on whom he can rely, he may venture in, without being called raſh. Nay, let him be ever ſo good a ſwimmer, or diver, it would be imprudent to venture into deep water alone, for the coldneſs is apt to ſeize on perſons in the water, and diſable them from helping themſelves ; and many an expert ſwimmer has, under this calamity, loſt his life.

There is ſtill another danger in bathing incautiouſly, that of catching cold. Boys are apt to go into the water too warm, and ſtand about naked, after they come out. They are liable to take cold in ſo doing. If they will bathe, they ſhould, as ſoon as out of the water, rub themſelves well with a dry cloth, and dreſs themſelves immediately. In this caſe, bathing will give them freſh ſpirits, and contribute much to their health.

PROGRESS OF MAN AND SOCIETY.

PART II.

MAN, AS HE IS.

TO have a proper conception of man, let us pull off his clothes, and view him, as he came into the world; that is to ſay, naked. I do not mean as an infant, for, in that ſtate, we have conſidered him; but full grown, when he has reached the age of manhood. We ſee him here, with a woman by his ſide, beautifully formed, as from the hand of the Creator. He does not walk on four legs, or on his hands and feet, as do the brutes of the field, but is made to ſtand upright, or erect, with ſuch an air of majeſty as becomes the Lord or King of the Creation.

By thus ſtanding on his feet, which by cuſtom he is enabled to do; for we have ſeen it is ſome time before infants can effect it; I ſay, by thus ſtanding upright on his feet, he is able to uſe his hands and arms, to defend himſelf, and procure food, and thoſe things that are neceſſary to preſerve his life, and make him comfortable.

The firſt man, Adam, whom we read of in the Bible, was not born as an infant, as man is at this day; but was created and formed by God, as we ſee him, full-ſized, and in a ſtate of manhood, capable of providing for, and taking care of himſelf.

God, having made the world, and determining to people it, for his own honour and glory, created and formed a woman, lovely, as we ſee her, and gave this woman to him for a wife.

From theſe our firſt parents,—from this man, and this woman, the whole world has been peopled, and that within the ſpace of ſix thouſand years.

This man, and his wife, had a number of ſons and daughters, born infants, as at preſent, whom they brought up; and when thoſe children came to be men, and women, they married alſo, and had other children; and thus, in length of time, the world was ſtocked, as we ſee it is, with people.

God, in his great wiſdom, gave man feet to walk on, and legs to run, that he might be able to move from place to place, enjoy himſelf, and make uſe of every thing within his reach. He alſo gave him hands to work, and fingers to thoſe hands, that he might take hold of the ſmalleſt thing. He enabled him to bend his body; to ſtoop; to lie down; and to riſe up again. He gave him ears, to hear; eyes, to ſee; a voice, to ſpeak; a noſe, to ſmell; and a tongue, to taſte. Without theſe gifts, it would have been uſeleſs to have placed him in the midſt of ſuch a variety of good things, which he could not have enjoyed.

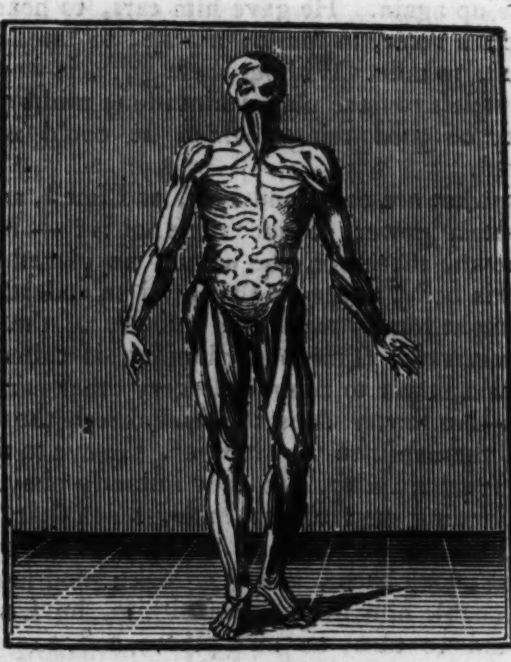
But what are ears, and eyes, and ſmell, and taſte, without a power to uſe theſe gifts? — Nothing. To crown, therefore, the whole, he placed a head upon his body, and gave that head an underſtanding, that taught him to make the beſt uſe of the gifts he had received. This underſtanding is called ſenſe, and has a power to command every other part of the body.—No ſooner does the ſenſe direct the feet to move, the hands to take hold of, the eye to turn, or the tongue to ſpeak, but they inſtantly obey. The underſtanding ſays to the hand, reach that, and it reaches it; to the feet, go there, and they go; to the eyes, look there, and they look; and ſo on.

To enable him to look round him, he has made the head to turn, as on a pivot; and, to give him grace and eaſe, in walking, he has made the toes to bend. Without this laſt convenience, he would ſtump along, as does a man on wooden legs.

This wonderful piece of art, or mechaniſm, then, is like the work of a watch. Man has, within him, a number of ſprings, and contrivances, to ſet all the parts of his body in motion, as you will preſently ſee; and, though in the form before us, he is caſed up, like a watch, yet we will take theſe caſes off, and ſee him as he appears within. A watch in a handſome caſe, is a beautiful thing; ſo is man, as we ſee him here, but take off theſe caſes, and it will appear much more beautiful; ſo alſo will man.

The firſt caſe, then, we will take off, ſhall be his ſkin.

MAN, IN HIS MUSCLES.



HERE, then, we ſee him with his firſt caſe, or ſkin taken off, that is, in his muſcles; for theſe cords of fleſh, which we ſee lie over, and between each other, are called muſcles, and tendons. Where the muſcles would be too bulky to lie, for the uſe of the limbs, they are rolled up into tendons, or ſtrings, as in the hands and feet. The contracting, or ſhortening of theſe muſcles, pull and move the limbs, in obedience to the will, or underſtanding, juſt in the ſame manner as the bridles fixed in the mouths of horſes, pull their heads on this ſide, or on that, as the coachman ſhall require.

Let us, then, ſuppoſe the head of man to be the coachman, and to direct the motion of the limbs, as a coachman governs his horſes. If he wants a leg to move—the head, or underſtanding, in that head, directs the muſcles that moves the leg, to contract or ſhorten; this pulls it forward like a bridle, or a rein, and it *moves* forward; if it wants the hand, or arm to move, it acts in the ſame way upon the muſcles, that move the hand, or arm, and *they* move; and ſo on with other parts of the body.

We don't ſee *how* the underſtanding gives theſe directions, but ſo it does; the manner *how*, is one of thoſe wonderful works of God, with which we are not acquainted. But ſo far we know, that a number of leaders, or fine cords, called nerves, branch from the head, all through the muſcles, in the ſame manner as we ſee the blood-veſſels do in the next figure. Theſe begin in the head, and ſpread, branching out, like a tree, through all parts of the body, and ſo thick, that you cannot prick any part, from the head to the foot, with the point of a needle, but you touch and wound ſome of them. Theſe nerves are ſo very ſenſible, that the leaſt wound gives pain; and it is, by theſe cords, or nerves, that the head communicates its will to the limbs, and directs them how to act.

If any of theſe muſcles, or moving parts, are cut through, or diſeaſed, all the limb belonging to them loſes its power of motion, and the underſtanding has no further command of it, any more than the coachman would have of his horſes, if the bridles, or reins were broken, or out of order.

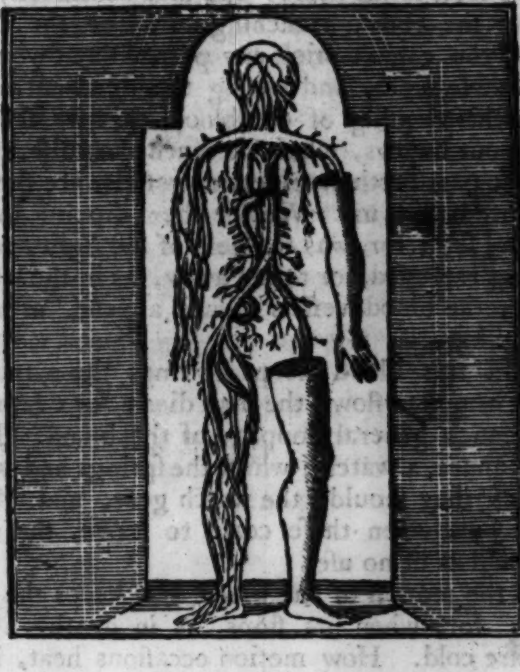
If theſe muſcles are bruiſed, they ſwell, and are full of pain; if they are cut, they bleed, being full of veſſels, or pipes, that contain blood as we ſhall preſently ſee.

Whilſt the man is in health, theſe moving parts, theſe muſcles, act with full power, and ſtrength; and whilſt his underſtanding and ſenſes, are perfect, and as they ſhould be, the limbs perform their office properly. But no ſooner is the underſtanding impaired, no ſooner does man loſe the right uſe of his ſenſes, but all theſe moving parts refuſe to act, as they ſhould. We ſhall ſee the hand inſtead of being employed to blow the noſe, taking another man by the noſe; and the leg and foot, inſtead of moving forward, to walk, kicking another man on the ſhins. In ſhort, we ſhall obſerve the ſame diſorder in the human frame, as we ſhall ſee in ungovernable families, where the maſter of the family is ſick, or abſent. Every thing goes wrong, and the houſe is full of confuſion. Juſt ſo is the human body; let the head, that governs it, be diſordered, and the limbs will be diſordered alſo.

This is the caſe with madmen; as ſoon as the underſtanding is loſt, the limbs, not knowing how to act, are as unrully, as the horſes in a carriage, that has loſt their driver.

How neceſſary, therefore, is it, not only to preſerve the underſtanding, but improve it by education; that it may govern, not only properly, but wiſely; and agreeable to the deſign of God, who gave it; which was to make men happy in himſelf, and uſeful to ſociety!

MAN, IN HIS BLOOD-VESSELS.



HAVING removed the fleſhy muſcles, that is, having taken off the ſecond caſe of this watch, we ſee further into the wonderful formation of man.

The human body is nouriſhed, and kept alive by the blood, that red liquor, which oozes out when we prick our fingers, or wound any part of the body. This blood flows conſtantly, as water runs in a channel, round all parts of the body, ſeveral times in a day. The heart, which lies within the breaſt, is hollow, like a pair of bellows, and contains a great deal of blood; and, by a natural preſſure, like a pair of bellows, drives the blood into the ſeveral pipes or veſſels, as the bellows does the air, through its nozel, and theſe carry it all over the body. From the heart it runs to the head, the hands, and the feet; and then returns from the head, the hands, and the feet, to the heart: and thus continually flows all over the body, branching out, like the nerves, ſo that you cannot prick any part without wounding one of theſe pipes, and letting the blood out.

It is this running of the blood, that we feel beat againſt our fingers, when we touch the pulſe.

Great part of theſe pipes, or veſſels, are ſhewn in the figure before us. We ſee them dipping into the hand and leg; for, was the fleſh of the right arm and right leg removed, or taken away, as in the left and left leg, the blood veſſels would appear, as in that arm and leg.

Whilſt this blood keeps flowing, the man lives; when it ceaſes to flow, the man dies; for death is no more than a general ſtoppage of the blood. In the ſame manner, a watch; whilſt the ſprings and wheels move as they ſhould, the watch goes, and tells the hour; but, when theſe ceaſe to move, the watch ſtops, and is of no uſe.

It is the motion of the blood that keeps the body warm; for, when its ſtops, as in death, all the parts are cold. How motion occaſions heat, is beyond a child's comprehenſion; but, that it does, is well known; for you may rub a piece of wood, till it is warm; and when the blood runs too faſt, it occaſions greater heat in the body, and brings on fever.

Now God, to renew this blood occaſionally, and make good any accidental loſs of it, has ſo ordained, that the beſt part of the food we eat, turns to blood, and the dregs, or worſt part of that food, is carried off by ſtool; the watery part, is carried off by urine.

How careful then ought we to be, to eat no food, or drink any liquors, that will not make good blood; and not to do any one thing that ſhall wound, or injure our frame?

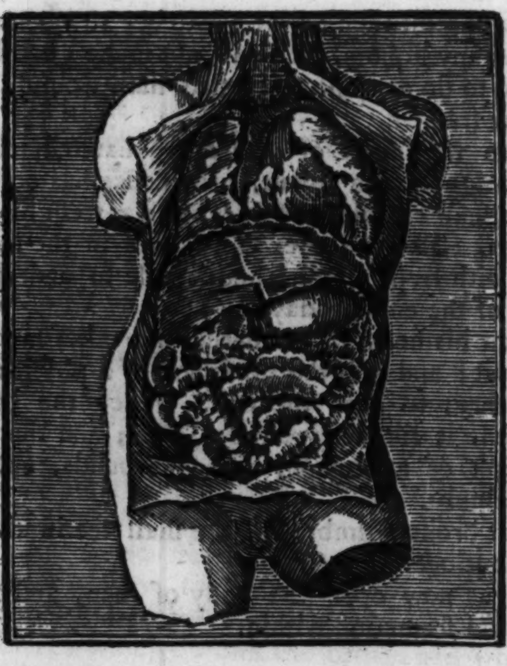
When the ſpirits of man are exhauſted, and his body fatigued with labour, providence has ordained, that he ſhall recruit his ſpirits, and refreſh his body, by ſleep. This he does daily, and in the morning wakes with freſh vigour, and is able to undergo the labour of the enſuing day.

When his body is diſordered, he takes medicines to cure it; and it is the profeſſion of a phyſician and apothecary, to cure the ſick. When the body is wounded, it likewiſe requires care; and this is the profeſſion of a ſurgeon, to heal wounds, and cure broken limbs.

What broken limbs are, we ſhall ſee in the next figure but one.

Let us now open the body of man, and ſee his wonderful formation within.

MAN, SEEN WITHIN.



HERE then the body is laid open, from the throat to the hips; and we behold how man is made within. We now view the movement of the watch, the ſprings, and wheels that ſet it in motion; that is to ſay, the inward parts of man, which God has formed to give motion to the blood and ſpirits, and preſerve life.

We here ſee, on the right above, the heart that drives the blood through the veins. This, with the lungs and liver, ſurrounding the heart on one ſide, ſpreading acroſs the body below it, lie in the cavity or hollow of the breaſt; and the ſtomach and entrails fill the cavity of the belly, under the liver.

What the lungs are, we ſhall now ſee. From the mouth, through the throat, there are two paſſages;

one to the lungs, through which we breathe; and the other, to the ſtomach, through which the food paſſes: and, that the food may not get into the wind-pipe, through which we breathe, and interrupt the air, nature has contrived a valve or cover,to the windpipe, that opens, to let the air paſs in breathing, but ſhuts cloſe, at the time of ſwallowing, that the food may not get into it, to choke it up.

We live only by breathing the air, which, when we draw breath, is ſucked down by the windpipe into the lungs, as the air is drawn into a pair of bellows, by lifting the handles. Theſe are hollow bags, and contain air; and when we breathe, the lungs naturally contract, or ſqueeze themſelves together, and thus drive out the air, as does the bellows, when we preſs the handles down. While man thus breathes, he lives; but, ſtop his air-paſſage, and he dies. Such is the caſe, when a man is ſmothered, or ſtrangled. Put him between two featherbeds, or into a place where there is no air, and it will ſmother him: hang him up by the neck, and thus ſqueeze his windpipe together, and you will ſtrangle him.

Air then is ſo neceſſary to life, that, if he breathes bad air, if he goes into infected places, breathing ſuch infected or unwholeſome air, will diſorder him, and bring on ſickneſs.

The other paſſage from the mouth through the throat, leads to the ſtomach; thence the food paſſes to the guts or entrails. In its paſſage, the nouriſhing parts of the food are taken up by the blood-veſſels, and carried all over the body, to feed and preſerve it; the watry parts of the food are ſtrained by the liver and kidneys, conveyed to the bladder, and thence carried out of the body by urine. The groſſer or thicker parts of the food, having performed their office, are alſo carried off from the body by ſtool.

All this is rather beyond a child's underſtanding; but it will teach him, with what wiſdom and contrivance God has framed us, and what an aſtoniſhing workman he is.

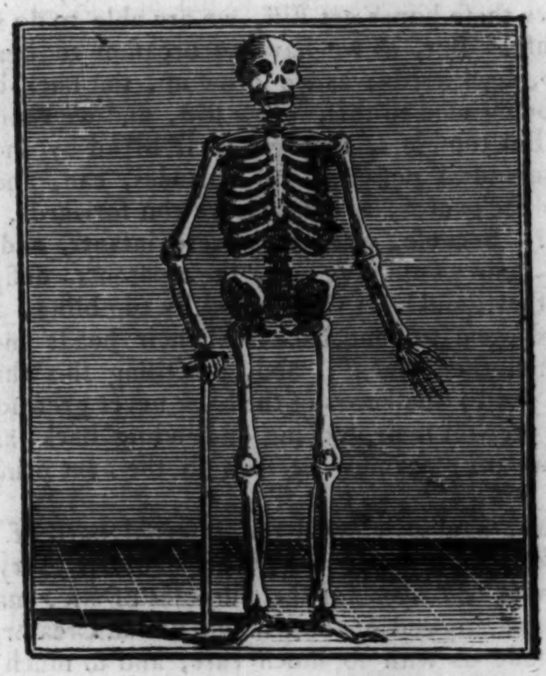
In ſome manner, as a watchmaker is acquainted with the inſide of a watch, ſo is the phyſician and the ſurgeon, with the inſide of man: and, as it is the profeſſion of the firſt to repair any injury the former ſuſtains, ſo is it the profeſſion or buſineſs of the latter, to remedy the defects of men's conſtitutions, as far as it is poſſible.

If any part of this wonderful mechaniſm is out of order, the man is ſick; if any part ceaſes to act, the man dies.

Now all living creatures are made, in ſome manner, like man, both within and without; though not exactly the ſame, even from the gnat, to the elephant, from the worm, to the whale. The animal machine goes regularly on for years; and, if no accident happens to ſhorten it, it will wear out in courſe of time, and die of old age.

Let a man's fortune then be what it will, let him have phyſicians and attendants at hand, let him have every remedy which nature provides, he muſt die at laſt; and this hour, though at its greateſt diſtance, is ſo near, that it behoves us to prepare for its arrival, and not trifle away thoſe precious hours, that are in fact ſo valuable.

MAN, IN HIS BONES.



HAVING removed the fleſh, the nerves, and the blood, we come to the bones, which are hard ſubſtances, contrived by our Creator, to preſerve the form of man, and enable him to ſtand upright. Theſe bones, when man is an infant, are ſoft, like griſtle, and eaſily bent; but, as he grows up, they become ſtiff and hard. This is the reaſon that children's bones are not ſo liable to break, as the bones of grown-up perſons; for, when we ſay, the arm or the leg is broke, it is the bone of that arm or leg.

From the neck, to the hip, we obſerve a great, hollow part; this is ſurrounded by the ribs or bones of the ſides; and within them, lie the contents of the breaſt and the belly.

The back-bone we ſee, is full of joints, to enable us to ſtoop; and, uſing ourſelves to ſtoop forward, before theſe bones get ſtiff, we are able to do ſo, all our life. But, as we have no occaſion to bend, or ſtoop, backwards; as we grow up, the back-bones, not being uſed to this, grow ſtiff, and we cannot do it. But tumblers, that get their bread by ſhewing us unnatural poſtures and attitudes, can, and do, ſtoop backwards, as eaſily as we can forwards. And why? Becauſe, when they were infants, and their back-bone would give way, their parents, deſigning that they ſhould get their bread by tumbling, accuſtomed them to bend back, till their heads and feet touched the ground; and, practiſing this through their youth, the bones of the back never grew ſo ſtiff, as to prevent their ſtooping or bending back, as well as forward; as may be ſeen in the next print but one.

Now, having viewed the internal part of man, and ſeen his formation; how wonderfully every part of him is contrived for the purpoſes of life, may we not ſtand amazed at the wiſdom of our Creator, who has made us with ſo much care, and ſo much contrivance!

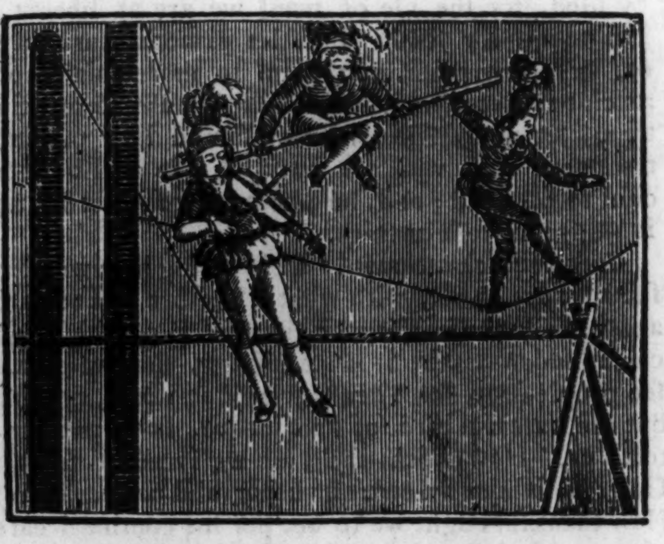
The beaſts of the field are framed in a ſimilar way. They have bones, blood-veſſels, nerves, and muſcles, as we have; and theſe are given for the ſame purpoſes. Their bones are as liable to break, their blood, to be ſpilt, their muſcles to be wounded; and, having nerves, they are as ſenſible of pain, as man; and, of courſe, putting a poor dumb creature to torture, who cannot ſpeak, to utter his complaints; and perhaps beingtied, is not able to defend itſelf; is cruel to the greateſt degree, and, at the ſame time, unnatural and unfeeling.

Though brute beaſts have the ſame ſenſe of pain with us, not having the ſame underſtanding, nor the ſame fear of death; killing an animal, is not ſuch a puniſhment to that animal, as putting a man to death, would be to him; and, as all animals were given, by God, for the uſe of man, we are at liberty to kill them, for food. But, let us not torture them, or, in killing them, put them to more pain than is abſolutely neceſſary; and, whilſt we are tormenting them, let us conſider, how we ſhould like the ſame treatment ourſelves. A merciful man will be merciful to his beaſt; and, he who cannot feel for brutes, is a diſgrace to humanity.

But, to return to man. Conſidering how wonderfully we are made, with what a number of fine parts and veſſels, the burſting or entangling of which, will cauſe ſudden death; it is aſtoniſhing, that we do not ſee people drop down dead, every day; and, nothing but the watchful care of Providence, ſaves and protects us. How much, then, are we indebted to that God, to whom we owe our being and preſervation! How thankful ought we to be, for his continual care of us; and, how kind and tender-hearted ſhould we be to our fellow-creatures, who are made, and ſuffer, like ourſelves!

Again. Of what has man to be proud? A lord is no better formed, than his ſervant; nor, can he boaſt of better materials. His frame is equally liable to be diſordered, and he will, in the end, die, like his ſervant, and be laid in the grave; when all his fine workmanſhip will decay, become food for worms, and moulder into duſt. If the great man has any thing to boaſt of, it can be only a better underſtanding, improved by education.

ROPE - DANCING.

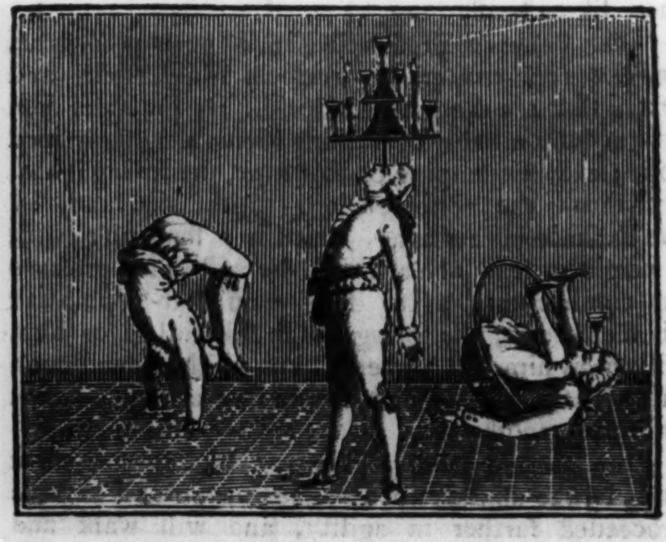


I HAVE ſhewn why God has thought proper to ſet man upright on his feet, in preference to the brute creation; that he might be able to uſe his hands and arms, not only for defence, but, for the purpoſes of ſociety. This poſition is acquired by habit; for, infants are ſome time before they are able to hold themſelves upright, becauſe they know not how, at firſt, to preſerve a balance, and ſupport what is called an *equilibrium*. This knowledge depends as much upon the underſtanding, as on the exertion of the limbs; for we ſee, that when a man loſes the uſe of his reaſon by intoxication, that is, gets drunk, he he cannot poiſe himſelf, or preſerve that equilibrium, that is neceſſary to make him walk ſteady, or keep upon his legs. If he is not quite drunk, his head will enable him to ſtand upon his legs, but not ſteadily; he will totter and reel about, but, the more ſtrong liquor he drinks, the leſs command he will have of himſelf; and, ſo little able will he be to ſtand, that he will fall to the ground, and wallow there like a beaſt.

This ballance preſerved, in a greater degree, enables rope-dancers to perform thoſe tricks and feats, that are thought wonderful. By practice, men will acquire a habit of walking along a tight-ſtrained rope; and, by jumping on this rope, the ſpring it has, will throw the perſon on it up in the air; and, by the ballance in his hand, which is a long pole, with a weight of lead at each end, he will ſo far preſerve an equilibrium, as to fall upon that rope with his feet; and, the ſpring which this fall gives him, will throw him ſtill higher. Thus will he bound upon this tight rope, up and down, ſeveral times, quick one after another.

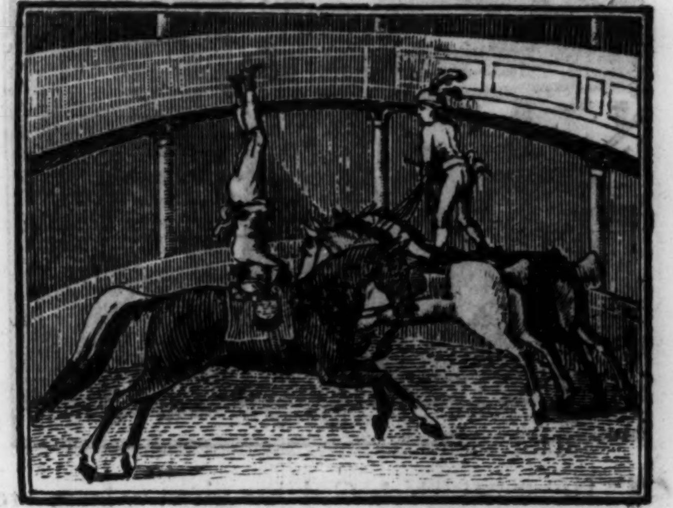
From the habit of walking and dancing on a tight rope, by the aſſiſtance of a ballancing-pole, men have proceeded further in agility, and will walk and ſwing upon a ſlack wire, ballancing themſelves with their arms, as is here ſhewn; and will, at times, be alſo, in full ſwing, able to uſe their arms, and play upon a violin. The practice of ſuch feats are, however, ſo uncommon, that men, clever at them, will earn a great deal of money, as much as a good player, in exhibiting their performances, in order to amuſe, and divert, the public.

TUMBLING.



IT is the preſervation of this balance alſo, that enables tumblers, and others, to carry a ſtand of wine-glaſſes on their chins and foreheads, without holding them; nay, will enable them to creep through a hoop, and yet not throw down the glaſſes, nor ſpill the wine. All that is neceſſary is, to hold the ſtand upright; which they do, by keeping that part of their face on which it reſts, directly under it.

FEATS OF HORSEMANSHIP.



Others will perform feats of horſemanſhip, will ſtand upon their heads on the ſaddle, and ſuffer the horſe to gallop, whilſt they are in this poſition; others, will ſtand, upright, on the back of two or three galloping horſes, and jump, from one to the other, whilſt they are in full ſpeed. Thoſe horſes are certainly taught to keep an equal, ſteady pace, and not to gallop too faſt; but the buſineſs is performed by the rider's preſerving an equilibrium.

THE FIVE SENSES OF MAN.

THE ſenſes which God has given to man, are five ; namely, ſeeing, hearing, ſmelling, taſting, and feeling.

The gift of ſight, or the power of ſeeing, is the property of the eye. This is placed in the head, which is the upper part of the body, to command a greater view, and be moſt out of the reach of danger. Sight is ſuch a bleſſing, that the poor wretch who wants it, is buried in continual darkneſs. We may, now and then, behold objects that create diſguſt and diſtreſs ; but ſuch are eaſily reconciled. But what would be our inconvenience, if we could not ſee our way before us ; and what would be our loſs, if we could not enjoy the brightneſs of the ſun, the richneſs of a proſpect, and the beauties of a fine day?

God, in forming the eye, has covered it with an eyelid, to ſhield it from outward accidents; has given it a laſh, ſo ſenſible, that if a mote, or the ſmalleſt inſect, touches it, the eye inſtantly cloſes, and ſecures itſelf from harm; a brow, to ſhade it from too much light; and has furniſhed it with tears, to waſh away any duſt that may lodge on the ſurface, and obſcure the ſight. Theſe tears are conſtantly running over, and waſhing, the ball of the eye; and, when they have performed their office, are carried off by a concealed paſſage into the noſe. How admirable the contrivance, and worthy of an all-wiſe Creator!

Hearing is the next ſenſe, and its organ is the ear. This, by the ſound it communicates to the brain, gives the alarm of noiſe, when any ſuch danger is at hand, as the eye, or other ſenſes, could not be acquainted with. But, independent of the ſecurity it beſtows, how charming to the ear is the ſound of muſic, the melody or ſinging of birds, the language of the brute creation, and the falling of waters! If the whiſtling of a ſtorm, or the howling of a tempeſt, alarms the traveller, the crowing of the cock, and the ſound of the village-bell, tells him he has not much to fear; for, though danger is at hand, protection is not far off.

But of all uſes of the ear, that of liſtening to the voice of others is the greateſt. Without it, man could not communicate his ideas, enter into the concerns of others, or enjoy the comforts of ſociety.

Smelling is a third ſenſe, and this is the property of the noſe. This ſerves alſo to alarm us, in caſe of danger. The approach of fire can be diſcovered, by the ſmell; the nearneſs of infection and diſeaſe, and the unwholeſomeneſs of food. But, independent of the uſe it is thus to man, how delightful is the ſmell of perfumes, and how regaling the fragrancy of herbs, and ſweet-ſmelling flowers!

The fourth ſenſe is taſting, which is the property of the tongue and the palate. Eating would be tireſome, three times a day, and a labour, if God did not temper and ſweeten this taſk, with delicious foods; foods that give a reliſh, and ſuit the taſte of different palates,—hot, bitter, ſour, and ſweet. Variety of foods have ſuch a variety of flavours, that eating is more a pleaſure than a pain. Nay, it is reckoned ſo great a luxury, that foods are brought from the fartheſt corners of the earth, to gratify, and pleaſe the taſte.

The gratifications of appetite are ſeen in the next print.

The laſt ſenſe is that of touching or ſeeling, and is the property of the fingers; the ends of which are ſo very ſenſible, that a blind man has been thought capable of knowing one colour from another, by the touch.

The goodneſs and quality of many things are diſcovered by theſe ſenſes. Silks, ſtuffs, velvets, and furs, are known by the touch; foods, by the taſte; perfumes, by the ſmell; muſical inſtruments, by the ſound; and a thouſand things, by the ear.

Now, as theſe ſenſes are valuable to man, he will do well to preſerve them, and avoid ſuch things as will injure them. Too great a light, will wound the eye; too great a noiſe, the ear; ſharp and acrid things will wound the ſmell, and the taſte; burning, will wound the touch; and ſickneſs will deſtroy them all. Each of theſe ſenſes are ſo uſeful in their turn, that, was man obliged to part with one, and aſked which he could beſt ſpare, he would not be able to determine.

Know, then, the worth of theſe bleſſings, and act accordingly.

MAN, ENDOWED WITH REASON.

THE greateſt gift of God to man, is that reaſon, or underſtanding, which diſtinguiſhes him from, or raiſes him above, the level of the brute creation. But for this, many of the brutes would be happier than men. They have uo foreſight, or dread of what ſhall happen to them in future, nor any unpleaſing retroſpect, or looking back, to former actions. If they can ſupply their hunger, it is all they want, and all they care for. They have, at the ſame time, many faculties ſuperior to man. The hare, for example, has a quicker ear; the cat, a better ſight; the dog, a better ſmell; and many animals have more ſtrength, and ſwiftneſs of foot.

But man has an underſtanding above them all. By ſtudy and reflection, he can enjoy every thing he ſees; he can account for all that meets his eyes, and enter into the wonderful works of God. In the painting before us, the gentlemen are noticing an appearance in the heavens, and ſetting down the inſtant of time it happened, meaning to enquire into its cauſe, at ſome future time. Great things are generally the object of men's ſtudy; leſſer things, the ſtudy of women; God having given to man a more extenſive underſtanding, and ſtronger powers of mind, than he has given to women: but woman, nevertheleſs, is endowed with reaſon, and has ſufficient underſtanding, to make her happy in herſelf, and pleaſing to all about her. We ſee here a lady, teaching her daughter to read, which is the foundation of all knowledge. Books, on all ſubjects, are written by ſenſible men; and if we can read, and comprehend ſuch books, we may from them learn every thing we have occaſion to know.

How neceſſary a thing, then, is education! without it, man is little better than a wild colt: but education forms him, and faſhions him. It is on this account, that children are ſent to ſchool, to receive inſtruction; and are led on, from one thing to another, till they have a ſufficient ſtock of knowledge, to enable them to make their way through life, and render them uſeful to ſociety.

Knowledge is ſo neceſſary to our well-being and happineſs, that parents, who love their children, give them always the beſt education they can afford; and, as a good education is a proof of the ability of the parents, it generally ſtamps the gentleman, and diſtinguiſhes him from the lower claſs of men, who have had little or no education, and are low, and underbred.

But, as ſtudy and education opens the mind, if good principles are not inſtilled at the ſame time, the knowledge the boy acquires, muſt make him wicked. By an inſight into religion, he is taught to look forward to a future ſtate, that other world, in which he is to enter, after death, and where he will be rewarded and puniſhed, according to his conduct and behaviour in this world. If he behaves well here, he will be rewarded hereafter; if he behaves ill here, he will be puniſhed hereafter.

Brute beaſts, having no underſtanding to guide them, are not anſwerable for their conduct; and, as they will never enter into another world, after this, they have nothing either to dread, or to hope for. Of courſe, they are far happier than man, unleſs man, by a good life, ſets his mind at eaſe, and leaves himſelf nothing to fear hereafter. Whatever he ſtudies, then, his firſt care ſhould be, to learn to act his part well, to reverence and worſhip his God, to love and obey his parents, reſpect his friends, and do good to every one; never to tell a lie, do no harm, but act, in all things, like one governed by reaſon, and influenced by religion.

§

MAN, DEVOID OF REASON.

WE have juſt ſeen the bleſſings and advantages of reaſon; let us now ſee, the wretchedneſs and diſadvantages of the want of it.

Reaſon is ſeated in the brain; and, when the brain is diſeaſed, reaſon forſakes us. We then ſay, the brain is turned. It is a moſt dreadful calamity to man, when it ſhall pleaſe God to deprive him of his underſtanding, and take away from him that command of his ſenſes, which reaſon gives him.

God, in depriving man of reaſon, does not take from him his ſenſes. He can ſtill ſee, hear, ſmell, taſte, and touch: but, of what uſe are theſe ſenſes to him, if he has not the command of them? If he cannot direct them to act as he pleaſes, they are like unruly horſes, that, having no bridles, nor driver to direct them, will run away with the carriage, overturn it, and deſtroy it.

The painter, ſtruck with the melancholy idea of this calamity, has given us a view of a mad-houſe, where ſuch unfortunate men are kept, as in a kind of priſon, to wear away their lives, without doing miſchief. It ſometimes happens, that diſeaſe ſhall diſorder the mind, and deprive a man of his underſtanding, for a length of time; bnt, by medicines, and proper attention, this man ſhall afterwards recover: but, where the diſorder is incurable, or cannot be cured, it were better that ſuch a man was dead, than that he ſhould live, under ſo great a calamity. But, as no one is authoriſed to take away the life of another, there are places charitably built, to ſhelter, and take care of, ſuch people. Theſe are called mad-houſes; keepers are appointed, to look after them, and take care they do no miſchief, and phyſicians, if poſſible, to cure them.

The madneſs of the men before us, is viſible in their conduct. Some, are raving at the windows one, has ſtripped himſelf almoſt naked, and is grovelling in the dirt; another, is pleaſing himſelf with having robbed a kind friend, that came to ſee him, of his wig; and another, in ſpite of his keeper, is jumping into the water: all acts of ungovernable madneſs.

There are but few men ſo totally deprived of reaſon, as to need ſhutting up in a mad-houſe; but, but there are many men, who have ſo ſmall a ſhape of reaſon, as to commit acts of very egregious folly. This is the caſe with children, before their reaſon is ſufficiently ſtrong and framed: they will do miſchief; they will act fooliſhly, and was it not for the care of parents and governors, they would often act like madmen.

As we reach the years of manhood, and grow to the ſize and ſtature of men, our underſtanding grows with us, and becomes ſufficiently ſtrong, to guide and govern us; but, as I have obſerved, ſome men have leſs underſtanding than others, and very often need advice, the great ſtudy of man ſhould be, firſt, to know himſelf; to conſider the ſtrength of his own abilities; how far he dare truſt to his own knowledge, and depend on his own underſtanding; and, ſhould he, in this ſelf-enquiry, find himſelf deficient; if he is wiſe, he will acknowledge that deficiency, and aſk the advice of thoſe friends, who are able and willing to adviſe him. He will not run headlong like a madman to his own deſtruction, but will ſubmit to the guidance of others, eſpecially in matters, that are eſſential to his own happineſs.

DEFORMITIES.

MAN, when he firſt came from the hands of his maker, was as we have ſeen, a beautiful and perfect creature, modelled with the greateſt judgment, and every part of him calculated to anſwer particular purpoſes. But man, now brought into the world, by the courſe of nature, is not always ſo perfect as he might be. Accidents in childhood and youth, will ſometimes injure the limbs, and diſtort the body; and ill-health, in a perſon whilſt he is growing, without proper care, will bring on deformities. As a tender tree, firſt propped, and trained up by the gardener, will grow knotted and crooked in his growth; ſo a weak and ſickly child, if not properly attended to, will grow up crooked and unſightly. Some children are naturally ſtronger than others, and will not in their youth require ſo much care; but, if thoſe that are tender and weak, are not well nurſed, they will carry about them ſuch marks of careleſſneſs, as ſhall give them cauſe to condemn their parents and nurſes, as long as they live. Some, ſhall be hump-backed; others, knock-knee'd; others, lame; and others, again, bow-legged. Some ſhall want an eye, and others, a hand.

Theſe imperfections in men, are too often owing to want of care in their nurſes; and therefore, when we find ourſelves perfect in all our limbs, we cannot ſufficiently, as I have obſerved before, thank thoſe that bred us up. As a young man has reaſon to bleſs his parents, for the good education they have given him, ſo ought he to be thankful to his nurſe, and thoſe that had the care of him in his childhood, for the attention they beſtowed upon him: for, I muſt repeat here, was an infant unattended to, he would die, almoſt as ſoon as born.

To remedy defects of nature, the ingenuity of man has contrived bandages, to make the limbs grow ſtrait; and, where a leg has been broken, and been obliged to be cut off, has contrived to ſupply the loſs of ſuch leg, with a wooden one. Theſe are but make-ſhifts to be ſure; but, where we cannot do better, we muſt do as well as we can.

But, there are ſtill other defects in the growth of man. As one tree ſhall grow to an uncommon bulk and height, and another ſhall be ſtinted, and not reach its natural height; ſo is it in the human ſpecies: one man ſhall grow ſo faſt, and ſo much, as to become a giant; whilſt another ſhall grow ſo ſlow, and ſo little, as to become a dwarf.

The common heigth of men in this country, is between five and ſix feet; and his general weight, when full grown, is about 150 pounds: but, we have ſeen ſome that have been eight feet high, and have been ſo bulky, as to weigh near 300 lb. weight; and others, ſo ſhort, as to be under three feet high, and not weigh more than 70 pounds.

In hot countries, all the productions of the earth, both trees and plants, grow up quicker, more ſlender, and to a greater heighth; and, in cold countries, they are all ſtinted in their growth. So it is in man. In warm climates, as in South America, men grow to ſeven feet high; and in cold climates, as in Lapland, they ſeldom exceed four feet and a half.

So again in warm countries, as in Spain and Italy, men are full grown, and reach the years of manhood, at 16; and women are marriageable at twelve. But, in ſuch caſes, the mind does not grow with the body; for, whilſt a man ſhall be full grown in his perſon, he ſhall be a boy in his underſtanding.

Such are the defects and imperfections of nature; but, they are, in ſome meaſure, remedied by the care and attention of mankind.

MARRIED LIFE.

WHEN man has paſt the years of infancy and childhood, and has completed his education, he is fit to be turned into the world, and to be left to provide for himſelf. Whilſt under the care of parents and teachers, his thoughts are centered in momentary pleaſures; he looks no farther forward, than to gratify his little wiſhes, and pleaſe thoſe who have the guidance of them. But, no ſooner is he arrived at manhood, than other thoughts and cares break in upon him. God, the wiſe diſpoſer of events, has placed within his breaſt, an ardent deſire for ſocial life, and to increaſe his ſpecies; has made him pant for a partner in his cares, and ſeek his comfort in domeſtic bliſs.

Able, by his induſtry, to maintain a family, he covets one to maintain. Here then we ſee him in married life, united to the object of his affections, and become the father of many children.

Marriage is a natural inſtitution, ordained by providence; to people the earth, and continue its ſtock of inhabitants; and all countries, to regulate theſe marriages, and create ties of kindred and relationſhip, have made laws, to prevent near relations from marrying with one another: for, were perſons to marry always into the ſame family, the affection of men would be confined to a few; but, marrying into other families, ſpreads that affection, and ties ſtrangers to each other.

It is natural to ſuppoſe, that the children of our firſt parents, Adam and Eve, who were all brothers and ſiſters, muſt have married one another, for, there were then no other people in the world. For three or four generations, then, all perſons living muſt have been very nearly related, having ſprung from the ſame parents; and marriages among theſe relations could not be diſpleaſing to God, becauſe neceſſity has no law, and there were no other perſons to marry: but, now that the world is ſufficiently ſtocked with people, it is enjoined by the laws, both of God and man, that, in order to keep up harmony and brotherly love among mankind, no man ſhall marry a ſiſter, neice, or any near relation; but, ſhall ally himſelf to ſome woman of another family; which makes matrimonial alliance nearly equal to that of relationſhip.

When a man is married, and has children, he begins to feel, and for the firſt time, his want of gratitude and attention to his own parents, and experiences, in the love he bears to his own offspring, the affection his parents had for him; and has now only to lament, that he has not a father or a mother living, to ſuccour and to comfort. I muſt obſerve here once again, that we are never truly ſenſible of a parent's love, till we become parents ourſelves; and then it is, if we have ever been ungrateful or undutiful to thoſe who brought us into life, that our own hearts ſmite us, and make us feel our want of nature.

This is the period of life, when we ſhould make the moſt of our time. The age of man is ſaid to be, threeſcore years and ten. The firſt twenty of theſe years are conſumed, in teaching us how to conduct ourſelves in the remaining ones; and, when we conſider, that the hours of ſleep take from us one full third of our days more, it reduces our life to little more than twenty years; and, if we deduct from this, ten years for old age, that yields us but little enjoyment, our life may be conſidered as ſhort indeed;—ſcarce more than 12 or 15 years of time almoſt, to be really uſeful to ourſelves and others: and, where one enjoys this period, many are cut off in their prime. How much then does it concern us, to apply ourſelves to wiſdom early, to make the moſt of the preſent moments, and not put that off till to-morrow, which may be done to-day! Delays are very dangerous: this to-morrow may never arrive: we may leave the world before night, and that which we propoſed to do, in ſuch a caſe, would be left undone.

Let us embrace then the firſt opportunity of doing what we have to do; and not put that off till to-morrow, which we can do to-day. When we have executed our deſigns, and fulfilled our engagements, our minds will be at liberty, to purſue freſh objects, and our ſchemes will not be fruſtrated, or broken through, by unforeſeen accidents.

Good wives, and good children, are the greateſt comforts in life; and a married ſtate, ſo circumſtanced, is the happieſt on earth: but, where we ſee confuſion, diſorder, and quarrels in a family, it is complete wretchedneſs.

The father of a family, is he who governs and provides for it. I ſay, governs it; for, without ſome regulations, things cannot go on well, any more than can the government of a country, without a wiſe conductor. A father is ſuppoſed to have the welfare of his family at heart: it is the ſtudy of his life, and his conſtant labour, to provide for, and ſupport it; and, of courſe, it is the duty of that family, to reſpect and obey him. Children and ſervants are not only bound to obey him, but the mother alſo, if that mother is his wife: and, ſhould it ſo happen, that fathers and mothers diſagree among themſelves, and that the father ſhould give one direction, and the mother a contrary one, it is the duty of a child, always to obey the father in preference to the mother; becauſe the mother is equally bound to obey the directions of her huſband.

Where there is ſuch diſagreements between parents, it muſt diſturb the peace of a whole family: but, I thought it neceſſary to mention this caſe, as it will ſometimes occur in life, and children may not know how to act; and, as this work is deſigned for young folks, ſuch an obſervation ſhould not be omitted.

DISEASE, AND DEATH.

WE have ſeen the nature of the human frame, conſiſting of bones, nerves, blood-veſſels, and muſcles, as ſo many ſprings and wheels of a watch, contrived by that great artificer, God, to work his machine, man, and keep him alive and well. But, like the mechaniſm of a watch, accident will put the human machine out of order; and, if not remedied, the man will die. Whatever this diſorder is, we call it diſeaſe. However active, and in good ſpirits, man may be to-day, by a little change of air, by too much heat or cold, by too much labour and fatigue, by eating and drinking too much, or eating improper food; by falls and bruiſes, and a number of other accidents, he may be ill to-morrow. His blood may flow too faſt, and occaſion fever; it may flow too ſlow, and occaſion languor; his ſtomach may be diſordered; in ſhort, a number of little circumſtances may, in a day or two, bring down his health, and lay him on the bed of ſickneſs.

But, Providence, who has ordained ſickneſs, has likewiſe given remedies for ſickneſs. There is ſcarce a diſorder in life, but nature has provided a remedy for, in the roots and herbs of the field and garden; and phyſicians, who have made theſe remedies their ſtudy, and, from a knowledge of the human frame, are acquainted with the cauſes of diſorders, are called in, and adviſed with, in hopes of obtaining a cure: the price is generally one guinea for each viſit. This may be prudent, for every one is juſtifiable in ſeeking for a cure, where ſuch is to be found. But, the great Phyſician of all, they think little of; I mean, the God who gave them being, and in whoſe hands are all the iſſues of life.

Our firſt application ſhould be to Him: we may ſend for a phyſician; but, we ſhould pray to God to beſtow a bleſſing on his endeavours, and to recover us from ſickneſs, if he ſhall think proper; if not, and he ſhould pleaſe to end our life, and call us to himſelf, we ſhould reconcile our minds to the awful period of quitting the world, and reſigning our breath cheerfully into the hands of him from whom we received it.

Whether the firſt diſeaſe we labour under, or the ſecond, may end our days, is uncertain; but, this we all know, that man has but a few years to live in this world, and that, ſooner or later, death will reach him, and take him from it. It is not wealth or honours that can ſave us; the help of drugs, the knowledge of the phyſician, or the tears of friends. When God calls, the king muſt die, as well as the beggar, or the ſlave. The time of our death is in his hands; he may call us, in our infancy, our youth, or in manhood; but, ſhould he be pleaſed to let us live through theſe, old age will come at laſt, and then we die, of courſe. Seventy years is generally the longeſt life of man; and, though ſome few ſhall reach the age of 80, and, now and then, one, 90; yet, the greater part of mankind die before the age of forty.

But, ſuppoſing eighty to be the period of his life, theſe eighty years are ſoon run out. Let us look back but a few years, and the ſhortneſs of that time will ſhew us, how ſoon the ſame number of years to come, will paſs.

It is but a few pages back, that we ſaw, and contemplated, man in his infancy;—a puling, helpleſs child, who came forth like a flower; which, as he grew up in youth, by the care of parents and friends, reached a hopeful bloom, and, in a few years more, reached the age of manhood. Now we ſee him, in the decline of life, verging to the grave at a good old age; for, ſhould no diſeaſe or accident ſhorten his life, he will, in the courſe of nature, grow old, and die, and go out, as does a candle, when all its wax or tallow, is burnt and gone.

OLD AGE.

AS a flower riſes from its ſeed in ſpring, blooms in ſummer, and withers and dies in autumn; ſo man ſprings forward, till he is twenty years of age; blooms till forty, and withers, and dies, at eighty. His blood leſſens in quantity, his bones ſhrink, his muſcles wither, and his conſtitution decays.

What ſhould this leſſon teach us? What ſhould we learn from this ſcene of ſickneſs? We ſhould conſider, that our ſtay in this life, is very ſhort; that we are ſent here to prepare ourſelves for another world; that we are like travellers, going on, as faſt as we can, to another country; and that, though we are at liberty to provide for this journey, as well as in our power, and make our paſſage through life comfortable, yet, our great care ſhould be, to ſecure a good reception at our journey's end.

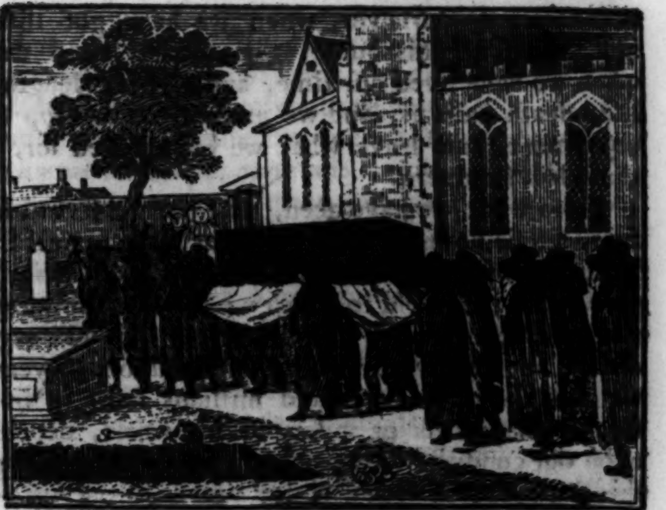
Happineſs or miſery is before us. If we act our part well, on this ſide the grave, we ſhall be rewarded on the other; if we act our part ill, we ſhall be puniſhed on the other.

Young folks, unacquainted with their duty, ſhould learn it from their parents or their teachers, and try their utmoſt to put it in practice. Part of their duty, is to ſay their prayers daily to God, be dutiful to their parents, affectionate to their relations, reſpectful to their ſuperiors, kind to their equals, do all the good they can, and no harm to any one.

If they purſue this conduct, they need never fear, either ſickneſs or death. They may be aſſured, God will bleſs them, prolong their days, and, when they die, take them into the regions of future happineſs.

This ſcene ſhould alſo teach us, how dependent we are on the good ſervices of others, and how much we are obliged to them for their care, their attention, and concern. Conſcious that ſickneſs gives trouble to all about us, we ſhould bear, if we chance to be ill, that ſickneſs with as much patience as poſſible, and not give more trouble than we can help. Reſignation is a duty which we owe to God; patience, a duty which we owe to man; and calmneſs, a duty which we owe to ourſelves.

A FUNERAL.



MUCH as we rejoice when a child is born; much as we may ſtudy to bring it up; careful as we may be to preſerve its life, and eſtabliſh it in the world; the time will come, when it ſhall leave the world, and all the joy we experienced at its birth, ſhall be turned into ſorrow, at its death. There is a time to be born, and a time to die: man cometh forth like a flower, blooms, and withers, and is ſeen no more; and all our care and anxiety for its welfare, ends in a little funeral reſpect, and attendance, to its grave. So man comes into the world, and ſo he leaves it. It is but a few years, and his beautiful form ſickens and decays; he is ſcrewed up in a coffin, and buried in the earth.

What then is there in this life ſo charming, that men ſhould be in love with it? We bring trouble into the world with us; are beholden to our friends for our preſervation in it; our whole ſtudy is, to feed and clothe ourſelves, and to ſupply the cravings of nature. It is a continual buſtle, to procure the neceſſaries and comforts we want; to ſecure thoſe neceſſaries to ourſelves, when we have got them: and, after all this buſtle, this anxiety, and care, when we have lived our time, and run our length of life, death calls us, and we are obliged to drop the enjoyment, and leave what we have toiled for, to thankleſs ſurvivers.

From what we have ſeen, as I have obſerved before, life is no more than a journey. We are all travelling to another world; and we are taught, in ſcripture, that the world to which we are travelling, will never have an end; that there, our life will never ceaſe; but that, when we have lived millions of years, we ſhall have millions and millions more to live; that our happineſs or miſery in that world, depends upon our conduct here; that if, in our paſſage through this ſhort life, in which, eighty years, in the ſight of God, is but as one day, we behave ourſelves well, are good, and religious, we ſhall be happy in the next world; but that, if we are wicked and irreligious, we ſhall there be miſerable. This conſidered, it is ſurely our intereſt, in this journey we are taking, to adjuſt and ſettle matters ſo, that we may have nothing to fear, when we reach the end of it.

What is a little momentary pleaſure, in compariſon of what we have at ſtake? As a man will cheerfully ſwallow a bitter draught of phyſic, in hopes to relieve himſelf from pain, and reſtore himſelf to health, ſo ſhould he willingly ſacrifice a little pleaſure in this life, with the hopes of enjoying happineſs in the next.

But, there is no need of ſacrifice. There is far more pleaſure in a good life, than a wicked one; for, independent of the comfort the good man has within himſelf, in looking back upon his conduct, he travels on quietly, without noiſe or diſturbance; and, for every little inconvenience he may feel, has the enjoyment of a good conſcience; is exempt from that fear, that harraſſes the wicked man; quits the world with compoſure; is followed to the grave, by thoſe who ſincerely mourn his death; lives in the memory of all his friends, and is ſure of a joyful reſurrection.

We may learn alſo, from this ſcene, how idle and childiſh it is, to pride ourſelves in being richer, or more exalted in life, than our fellow-creatures. The only diſtinction of a rich man, is a little more reſpect, whilſt he lives; and, when he dies, a little more attendance at his funeral. The rich ſhall poſſibly be put into a leaden coffin, and buried in a vault, which is a cellar underneath the church; that his aſhes, if required, may be collected at ſome future time; whilſt the poor man muſt be contented, to have his body put into a wooden coffin, and buried in the earth. The one ſhall have a monument placed over his tomb; whereas the grave of the other ſhall be diſtinguiſhed only by a graſſy hillock. The one ſhall be carried to his laſt home with a little more pomp than the other; but here, his greatneſs ends. When buried, the rich and the poor are left to rot together: worms devour them both. But, at the reſurrection of the dead, the poor man, if he has lived a better life in this world, than the rich man, ſhall be exalted above the rich; and, whilſt the king, perhaps, for his vices here, ſhall be conſigned to everlaſting puniſhment, the beggar, for his virtues in this life, ſhall be crowned with endleſs happineſs.

The expence of a funeral is from 10l. to 500l. according to the ſtate with which it is conducted. State funerals have coſt ſome thouſand pounds. Monuments raiſed to the dead, have coſt many thouſand pounds, according to their magnificence: others are merely a grave-ſtone, worth five pounds.

PROGRESS
OF
MAN AND SOCIETY.

PART II.

MAN, IN A STATE OF NATURE.

GOD, having formed the earth, and all living creatures upon it, thought proper to create man, as the governor of the whole; and gave this man a wiſe, that, from theſe our firſt parents, the world, in courſe of time, might be ſtocked with the human race, as it would be with the brute creation; for, having created man and woman for this purpoſe, ſo he created male and female of every animal, that they might equally breed, and fill the earth.

Adam and Eve then, our firſt parents, formed full-grown, were placed, as I have already noticed, in a delightful ſpot in paradiſe; ſurrounded with the birds and beaſts of the field, who were equally as harmleſs and innocent as themſelves. They were naked; but, there not being ſin in the world, they had no ſenſe of ſhame, and therefore, nakedneſs was no trouble to them. Unuſed to clothes, they wanted none: the ſun ſhone warm upon them; and when they layed down to ſleep, being accuſtomed to cold, they required no covering.

Every animal about them, was tame and gentle; the tiger, one of the fierceſt of beaſts, was then as harmleſs as the kid; the ſerpent had no venom, and the lion would lie down with the lamb. Man lived, as did the flocks about him; eat, as they did, of the herbs of the field, and partook of their ſociety. But, no ſooner did ſin enter into the world, that is to ſay, no ſooner did our firſt parents offend their Maker, by acting contrary to his commands, than all their innocence left them; and, by way of puniſhment, God told them, that the fruits of the earth, which, before they offended, ſprung up naturally under their eyes, and offered them food, unaſked and unſought for, ſhould do this no longer; that they ſhould have nothing to eat, but what they worked for; that man, ſhould, in future, live by the ſweat of his brow; that the beaſts of the field ſhould fly from his ſociety, and become his enemies; that ſtorms and tempeſts ſhould annoy him; that his wife, who was a partner in his offence, ſhould be alſo a partner in his trouble; that ſhe ſhould bring forth children with pain; and that they ſhould be wanderers on the face of the earth.

From this diſaſter, man became acquainted with trouble. Both he and his wife, aſhamed of their nakedneſs, ſought for ſomething to cover them; and, ſenſible of the cold at night, and the blaſts of cutting winds, roved about in ſearch of caves and dens, for ſhelter. The animals that uſed to flock round them, run from them through fear; and ſuch as were moſt furious and ſavage, laid wait to deſtroy them. All living creatures changed, as it were, their nature: from being tame and harmleſs, they grew wild and fierce; enemies to each other, and more ſo to man.

Adam and Eve, thus expoſed to the ſeverity of unkind weather, and the ſavageneſs of wild beaſts, fled, like hunted deer from their purſuers, and were obliged to have recourſe to their invention, to ſecure themſelves from harm, and procure themſelves comforts.

But God, who always tempers his ſeverity with mercy, and who, in his greateſt anger, is conſiderate, did not abandon them for this one fault; but, having made the earth, and every thing therein, for the uſe of man, ſtill continued them for his uſe; gave him invention and abilities to convert them to the purpoſes he wiſhed; ordained, indeed, they ſhould no longer offer their ſervices unſought for, as they did, before he and his wife had offended; but, that our firſt parents ſhould ſtill enjoy them, on condition they took pains ſo to do; and theſe pains were their puniſhment.

This unhappy couple, obliged to abide by their lot, endeavoured to make the beſt of it. Obſerving that plants ſprung up in the ſpring, bore fruit in ſummer, produced their ſeed in autumn, dropped it in winter; and that, from the ſeed, new plants ſprung up the ſpring following; they gathered this ſeed, preſerved it, looſened the ground in ſpring, ſowed the ſeed in ſuch looſe ground, and thus produced crops to ſupply them with food. This was the beginning of huſbandry, and the origin of farming.

MAN, IN A SAVAGE STATE.

WE have ſeen man in a ſtate of nature; let us next conſider him as a little removed from this firſt ſtate, but ſtill, wild and uncivilized; that is, untaught, unlearned, and uninformed; almoſt as ignorant as the beaſts of the field.

In ſome countries, the arts and ſciences have made greater progreſs than in others; and, where learning has been introduced, and books have been general, the minds of men have been opened; they have become more ſenſible of their wants, and that ſenſibility has made them look out for comforts and indulgencies.

But, in other countries, the people have made much leſs progreſs; they have continued, ſince the creation, in a ſtate of barbariſm; that is, uninformed, and, as it were, uncivilized, and are, at preſent, little better than in a ſtate of nature; with little or no covering, living in tents, and hunting wild beaſts, for their daily food; and having no bread, but the fruit which a tree, called the bread-tree, affords.

We ſee man, in this ſavage ſtate, in the wilds of Africa, Aſia, and America. About one hundred years back, the whole continent of America, a tract of 4000 miles in length, and 2000 in breadth, was inhabited only by ſuch ſavages; but civilized ſtates have ſent numbers of families into that country, furniſhed them with neceſſaries; and theſe families, having increaſed, have ſtocked it with people.

But the hotter country of Africa, being unhealthy, and diſagreeable to live in, has been neglected; and the people there continue almoſt as wild and ſavage, as they have done, from the infancy of the world.

Africa is the country of the negroes, where the nations are all black, as we ſee them here repreſented; which is, in a great meaſure, owing to the heat of the climate, for the ſun ſhines hotter there than in other parts. The people, inſtead of hair upon their heads, have black wool.

But, in the Eaſt-Indies, where the ſun is not quite ſo powerful, the inhabitants have long, black hair; their complexions are not ſo dark, being often olive, or dark brown colour; and their features are better formed. The African blacks have large, white eyes, blubber lips, and ſquat noſes; but the natives of India are beautifully formed, like ourſelves.

In one part of the world, there is a tribe of men, whoſe complexions are much whiter than our own; who have red eyes, and whoſe heads, inſtead of hair, are covered with a white wool, or cotton; ſo great a diverſity is there, in the make and features of man!

It is the misfortune of theſe black countries, that the people are conſidered there as little better than the brute creation, and are bought and ſold at market, like a horſe, or an ox. They are purchaſed as ſlaves, to work for thoſe that buy them; and continue ſo, to the end of their lives. How far this is right, we will not here pretend to ſay; but, it ſhows the advantages of learning to mankind; how much ſuperior thoſe who have received an education, are to thoſe who have had none; and, how happy thoſe children ought to be, who are born, and bred up, in an enlightened country, and who are bleſſed with parents, able and willing to afford them inſtruction, and ſupply them with thoſe conveniencies and comforts, which thouſands of poor wretches want!

MAN, IN A CIVILIZED STATE.

WE have ſeen man, at his firſt creation, and afterwards, in a ſavage ſtate, ranging the foreſts like a beaſt of prey, in ſearch of food; without clothes to cover his nakedneſs, or a houſe to ſhelter him; before he became acquaiuted with thoſe comforts and conveniencies of life, that Providence threw in his way, and ordained for his uſe. How comfortleſs was ſuch a ſtate; and how ill ſuited to a being, endowed with rational faculties, and deſtined for ſociety!

Let us now view him, in a ſtate of civilization and luxury; bleſſed with every indulgence his heart can wiſh, aad poſſeſſed of every convenience that nature affords. Inſtead of being obliged to hunt the fields for meat, huſbandry has opened the ground, to yield him food for himſelf, and the animals about him; and the moſt delicious dainties are brought to his door, from the moſt diſtant parts of the world. Inſtead of ſheltering himſelf in dens and caves, ſumptuous houſes are built for his accommodation, and furniſhed with every convenience his invention can contrive. Inſtead of covering his naked ſhoulders with the ſkins of animals, a variety of trades combine to dreſs him; woolcombers, weavers, dyers, ſempſtreſſes, taylors, milliners, hoſiers, hatters, ſhoemakers, and a number of others. All nature is attendant on his will. Ships and boats are built, to convey him upon the waters; and bridges are thrown over rivers, that he may paſs them on foot.

That he may travel with eaſe, on dry land, carriages are conſtructed, to tranſport him; horſes broke in, to draw him; and the roads and ways made good, for his eaſe.

So much for his accommodation. Next, as to his pleaſures. Muſic has been invented, to pleaſe his ear; paintings, to captivate his eye; and perfumes, to regale his noſe. Taſte and refinement have united, to ornament the country round him; and, by new-created pleaſures, prevent his repining at the loſs of paradiſe. What would he more? If he has any troubles, they muſt be thoſe of his own mind, ariſing from diſcontent and diſſatisfaction.

Indeed, man is naturally ungrateful; he is too apt to forget theſe favours of Providence, and be inſenſible of the bounty of Heaven. To God we owe all theſe things originally; and, though they are the fruit of our invention, he it is, that has given us abilities, to convert and apply them to the ſeveral purpoſes of life; and he it is, that can take them from us.

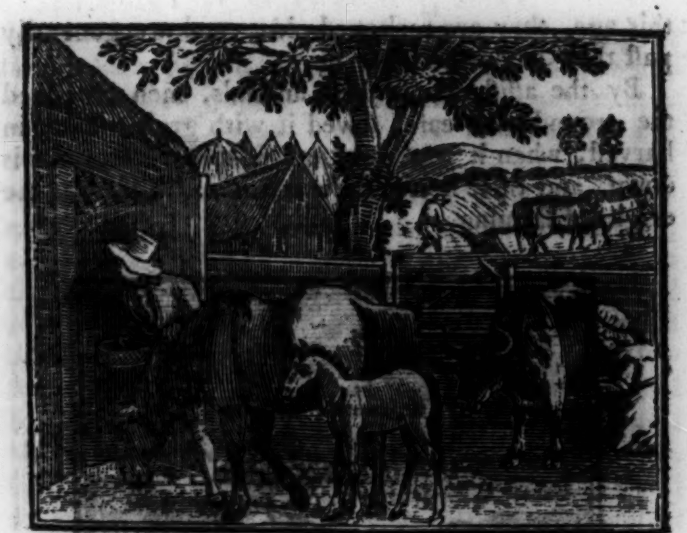
Of theſe worldly bleſſings, he has given ſome men more than others; not becauſe they are more deſerving, or more entitled to them; but, as having more underſtanding, more abilities, and greater opportunities of doing good with them. He has implanted in our natures, a love for each other; and, has thus enabled one man to aſſiſt another. If, therefore, we ſee men in want of thoſe comforts, which we poſſeſs in abundance, and are enabled to beſtow upon them, and do not do it; we counteract the will of Heaven, oppoſe the intention of our Creator, and our God; and run the riſk of his taking from us, thoſe bleſſings he has enriched us with.

We are not to live for ourſelves alone. A ſelfiſh man, is little better than a brute beaſt, that has no underſtanding. It ſhould be man's greateſt pride, to aſſiſt his fellow-creatures, and do good offices, where he can. There is ſcarce a man ſo poor, but he has it in his power, at times, to be of uſe to us; and, if we ſerve him, in one inſtance, we may reaſonably expect his good ſervices in return: but, if we are ſelfiſh and churliſh, inſtead of making friends, we ſhall create enemies; and, in the end, puniſh ourſelves, for our own miſconduct.

HUSBANDRY.

AS men grew weary of a hunter's life, and families increaſed ſo faſt, that it required large diſtricts to furniſh them with food, procured by the chace; neceſſity obliged them to turn huſbandmen, to raiſe corn, for the purpoſe of making bread; and to breed, and bring up cattle, not only for the uſe of man, but, for their food.

Having caught the male and female young of animals alive, ſuch as colts, calves, ſheep, &c. they ſecured them about their habitations, fed them by the hand, and thus tamed them, and brought them up; and ſuch animals, being of a domeſtic nature, found a pleaſure in continuing with their benefactors, and never after left them; but bred, and produced their young: ſo that, in length of time, each family had numerous herds and flocks. Poſſeſſed then of ſo much living property, they found it neceſſary to raiſe herbage and grain to feed their cattle, as well as themſelves. They trained up oxen, to the plough; horſes, to the cart; and cows, for the uſe of milk, butter, and cheeſe.



Though many animals are ſo accuſtomed and inured to the cold and weather, as to require little ſhelter, even in the winter; yet, ſuch as are hard worked, require care and attention. When their day's work is done, they are put into a ſtall, cleaned, fed with oats and hay, and a bed of ſtraw put under them, to lie and ſleep upon.

The print before us is a farm-yard, with a brood-mare, and a foal by her ſide. The breed of horſes, in this country, is much attended to: ſtrong horſes are bred up for the plough, coach, and cart; lighter horſes, for the ſaddle; and ſome are bred for running. Theſe laſt are called race-horſes, and are trained up to run for wagers, one againſt another. Such horſes have been ſold for 3000l. each, when a cart-horſe ſhall not be worth 20l.

The foal generally runs with the mare, and ſucks her milk for the firſt year; when three years old, it has its full growth, is broke in, and taught for the work it is deſigned for: and the horſe is conſidered in its prime, from four years old, to eight. After this age, they are reckoned old; and are generally paſt their labour at 14 or 15.

By the aſſiſtance of theſe animals, men ploughed the ground with eaſe, ſowed it with grain; and, in harveſt, when it was ripe, and fit to cut, they cut it down, and their horſes drew it home. This was the origin of farming.

The farmer has ever been conſidered as a moſt reſpectable, and moſt uſeful, member of ſociety. The pleaſures ariſing from the conſtant attention to his buſineſs are innumerable. He awakes early, and ſees that his workmen are induſtrious; and, as the produce of his ground depends much on its being carefully ſown, he takes that part upon himſelf, whilſt his men harrows in the ſeed, as he ſcatters it on the ſurface of the earth. Wheat, barley, and oats, are ſown in the manner the print deſcribes. The diligent farmer ſoon perceives his labours have not been in vain: the ſeed quickly grows; and, when ripe, it is cut down, and carried home. He now threſhes out the wheat-ſeed, and ſells it to the baker, to make bread. Barley he ſells to the maltſter, to make malt; which is ſold to the brewer, to make beer, and to the diſtiller, who diſtills gin. Oats, when cleared from the ſtraw, are given to horſes: and beans are the food of pigs and poultry, with which the farm-yard is always plentifully ſtocked. The ſtraw is made uſe of, for the roofs of cottages and barns, and is given for beds for the horſes; and, being mixed with marle, and different ſorts of earths, ſerves to improve the ground, and render the ſoil more fruitful; for, the ground that is in a conſtant ſtate of bearing corn, requires dreſſing.

The advantages of his farm-yard are many; he lives at ſmall expence, for he is well ſupplied with eggs, butter, cheeſe, bacon, and pork, on which his family chiefly ſubſiſts. The profits ariſing from his corn, enable him to ſecure for himſelf, all the comforts and luxuries of life; and he is generally eſteemed by men of ſuperior rank, and beloved by thoſe around him; he is the protector of the poor, whoſe wants he ſupplies, and renders their lives happy, by keeping them in conſtant employ.

Men, having thus found out a readier method to procure proviſion, than by the uncertain and laborious cuſtom of hunting for it, in wilds and foreſts, dropped the chace, as a branch of buſineſs, and never took it up again, but for exerciſe or pleaſure. Men hunt, now and then, the wild boar, deer, hares, and foxes, as I ſhall ſhew, but never have recourſe to ſuch means for ſubſiſtence.

In the early days of ſociety, all men were huſbandmen, it being the only means of procuring food; but, as one man can raiſe more corn in one year, than he can eat in twenty ; and, as different men are bleſſed with different talents, they agreed among themſelves, in ſmall ſocieties, that one man ſhould plough and ſow the land, and raiſe ſufficient grain and cattle for the whole ; another ſhould make clothes for the community ; another, build houſes ; and another, make furniture, and ſo on. Hence were introduced the ſeveral trades of farmer, taylor, builder, carpenter, &c. and, in the courſe of time, men were furniſhed with all the neceſſaries and luxuries of life, as wee ſee, in the preſent day. And herein, one tradeſman is as uſeful as another : if the taylor makes clothes for the baker, the baker makes bread for the taylor : if the hatter makes hats for the ſhoemaker, the ſhoe-maker, in return, makes ſhoes for the hatter. Each works for the other in his way; and different men thus applying themſelves to certain branches of trade, each branch is better executed and finiſhed, than if, as in Lapland, every family made their own conveniencies. The more practice a man has in any profeſſion, the better workman he is ; and certainly, he who makes any one article for a thouſand people, has more practice in that arcicle, than he who makes it only for half a dozen.

Thus it was, that trade commenced. When a farmer had more corn than he could diſpenſe with himſelf, he bartered, or changed it with the taylor, for clothes, the ſhoe-maker, for ſhoes, or the hatter, for hats. The taylor, ſhoe-maker, and hatter, did the ſame ; changed with each other, things they did not want, for thoſe they did.

And in this mode is trade carried on in countries where there is no money ; but more civilized ſtates, finding exchange or barter very inconvenient, invented the uſe of money, by which every article of trade is valued. A farmer ſells his corn for money, and with money buys clothes ; the ſhoe-maker ſells his ſhoes for money, and with this money pays the baker ;

baker for his bread; and the baker, in return, gives this ſame money for any other article he wants. Thus may a man, with ſufficient money in his pocket, purchaſe all the neceſſaries, comforts, and indulgencies of life.

There is nothing we poſſeſs, but what grows, and is the produce of the earth. Iron, that makes a thouſand uſeful things, grows in the earth; ſo does ſtone, that builds houſes. Wood is produced from trees; linen, from flax and hemp, which grow like corn. Silk is the produce of the ſilk-worm; wax and honey, of the bee. Glaſs is made from flint-ſtones. Lead, copper, ſilver, gold, and diamonds, grow in the earth; as do coals and metals. Bricks are made of clay; and clay is ſtiff earth. Woollen cloth is made of wool, and wool is the fleece of the ſheep. Leather is made by the tanner, of the hides or ſkins of animals. Paper is made of linen rags. Cheeſe and butter is made from the milk, and tallow from the fat, of animals.

Bountiful, then, has God been to man, in providing him with every material neceſſary to make his life happy, and giving him talents to convert theſe materials to his own uſe; and grateful ſhould he be in return to that God that gave them!

§

FLAX-DRESSER.

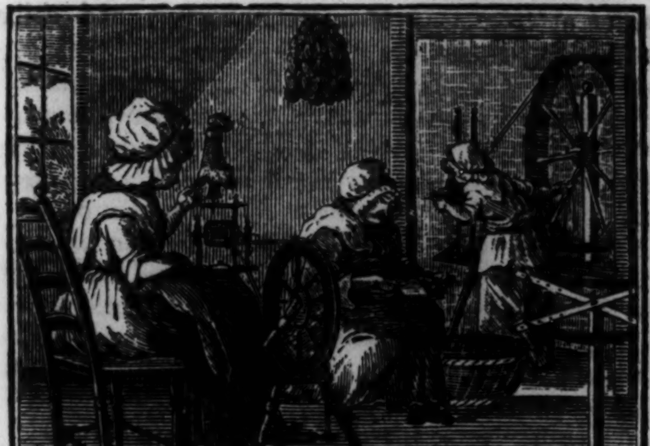
I have juſt now obſerved, that every thing we have is the produce of the land, which the fertile invention of man, has converted to his uſe and to his comfort. Even the dreſs made by the taylor and the milliner, riſes originally from the earth. Woollen cloths are made of wool; wool grows on the back of the ſheep; and the ſheep, as well as man, was created, by God, from the duſt of the earth. Linen is made of flax, which is a plant, ſowed in the fields like other grain; and, when ripe, and fit to cut, is converted into thread in the following manner:

After the plants are pulled up, they are laid, in ſmall heaps, in the field to dry; and, when the ſeed is beat out, and the leaves combed off by a ripple, the ſtems are ſoaked five or ſix days in water, to rot them; and, when this is done, they are dried in a kiln. After this, the ſtalk is peeled, and the woolly part of the ſtem is bruiſed, or beaten with beaters. It is next ſwingled, or beat again, with a piece of wood, edged for the purpoſe: then beaten, on a block, with hammers or beetles, till it ſeparates into threads. After this, it is ſteeped, waſhed, and dryed again, and dyed of various colours. This is alſo the manner of preparing hemp; which grows alſo like flax; and of which a coarſe thread is formed, with which they make ſack-cloth, and other linens.

Whether it be hemp or flax, in this ſtate, before it is dreſſed, it is called tow. To prepare it for the ſpinner, it is heckled, that is, paſſed or pulled through, various toothed inſtruments, not unlike the wool-dreſſers combs; which are ſquare pieces of boards, with handles, full of teeth, between which they tear the tow, backwards and forwards, till it is very ſoft and fine.

The man, in the middle of the preceding cut, is heckling of flax; that is, drawing it frequently through an inſtrument, with long wire teeth, ſtanding upright.

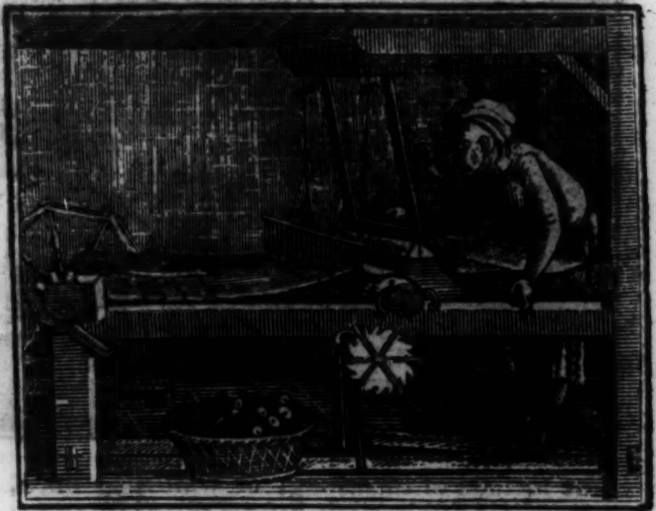
The old woman, in the cut below, is carding, or combing it on her knee, between two cards.



When ſo done, a bundle of this tow being fixed on the top of the diſtaff belonging to the ſpinning-wheel, is pulled off gradually with the left hand, and with the right, led round the ſpindle; and, as the ſpinner turns the wheel with her foot, ſhe twiſts the tow or wool, and converts it into threads or worſted. After this, it is wound round ſome pegs on a ſtand, as on the right of the cut, and then tied up into ſkeins for ſale. When wool is ſpun, they draw the wool with one hand, and turn the wheel with the other.

In the ſtate of thread, or worſted, it is ſold to the weaver, and the ſempſtreſs. The former converts it into cloth; the latter forms that cloth into various forms for dreſs.

Linen and woollen cloth, are both woven the ſame way; the firſt from thread, the ſecond from worſted. So alſo is ſilk; which, when taken from the ſilk-worm, and wound, is called floſs-ſilk, and afterwards ſpun into ſewing-ſilk. The weaver, in the following cut, is weaving cloth. Stockings are woven from ſilk, thread, or worſted, by a machine, different from this of a cloth-weaver, and called a ſtocking-frame.



To deſcribe the manner of weaving, would be uſeleſs to a young mind. It is ſufficient to ſay, that by means of a weaving-machine, called a loom, the thread is converted into linen-cloth, and the woollen into woollen-cloth; which laſt is ſent to a fulling-mill, to waſh, and cleanſe from the oil with which the wool is preſerved; and the linen to the bleaching-ground to whiten; for, when it is firſt made, it is brown, and of the colour of the thread of which it is formed.

Woollen cloth undergoes a number of operations before it is fit for ſale; but linen is nearly finiſhed, when bleached and preſſed.

The method of bleaching, or whitening linen, is as follows. After it is taken from the weaving-loom, it is ſoaked in water, mixed with wood-aſhes; then ſpread upon the graſs, in a meadow, and watered, from time to time, as it dries, with clear water from little ditches cut in the meadow, and thrown over it with a ſcoop, or hollow peels of wood. Being thus expoſed, for a month or ſix weeks, night and day, to the ſun and air, it grows gradually white.

Linen, thus ſold, is converted into ſheets, ſhirts, beds, and a variety of other things, for the uſe of men. Being cut into form, the ſeams are ſewed together with a needle and thread. This is the buſineſs of the ſempſtreſs. Caps, ruffles, and ſuch ornaments of a lady's dreſs, are made by the milliner; but family-linen of moſt houſes is made up by the mothers, daughters, and women-ſervants, of each family. It is an employment for girls and women, without which, with all the amuſements which life affords, time would hang heavy on their hands, and be a burden to them.

In the preceding ſcene, are three maidens uſefully employed. One is ſewing, with a needle and thread; the ſecond is knitting ſtockings, with worſted, and two iron knitting-needles: a method purſued formerly, before they found out the art of weaving them, and indeed is now in uſe among the poor in many parts of England: and the third is making lace, ſuch as women ornament their caps and ruffles with. This is made upon a cuſhion, with a great number of threads wound upon bobbins, or little pieces of wood, and which the lace-maker twiſts round a number of pins ſtuck into the cuſhion, ſo as to form a pattern, and thus makes that beautiful and fine open work, which is called lace.

Lace is ſold by the yard, according to its breadth and fineneſs, from 6d. a yard, to 20s. and more; and, being made by women, it employs many thouſand poor families, that muſt otherwiſe get a living by hard labour. There are ſome places in England, where every houſe is full of lace-makers. Theſe ſell it to people who travel round among them, and buy it cheap, and who find a livelihood in ſelling it again to ſhop-keepers, in different parts of the country.

Linen, we all know, becomes dirty with the wear of a day or two; but, it is of a texture, that with ſoap and water, will waſh clean again. This buſineſs is alſo done in families. But, there are perſons who make it their buſineſs to waſh linen for families that are otherwiſe employed, and theſe are called laundreſſes.

Such linen is rubbed with ſoap, ſoaked in water, then rubbed with the hands; and, when thus cleaned from the dirt, is rinſed in clean water, coloured with a little blue, ſtiffened with ſtarch made from flour, hung up to dry, and then ſprinkled with water, and rubbed over with a hot iron, to make it ſmooth, and fit to wear again.

Muſlins and callicoes, that are made of cotton, are prepared the ſame way. Theſe are the produce of the cotton-tree, that bears a kind of flower, producing cotton. When made up into linen, it is frequently figured and ornamented, by men who call themſelves callico-printers; and who have an expeditious and cheap method of painting them in a variety of colours; and of theſe, ladies make their gowns, beds, and window-curtains.

DRESS.

IN the infancy of the world, men went naked, and, as they knew no ſin, were not aſhamed; ſhame being a conſciouſneſs of ſomething wrong: but, no ſooner did ſin make its inroads on mankind, but they were aſhamed of being naked. To hide therefore, or cover their nakedneſs, they made themſelves aprons of the broad leaves of the fig-tree, ſewing them together probably with a thorn and a piece of ruſh, for they had neither needles nor thread. Having worn theſe for ſome time, they could not do without them; for, what we are accuſtomed to, we want, and he that is uſed to wear clothes, cannot go naked; he would not only be aſhamed, but would catch cold. Having found the comfort of an apron, they coveted other kinds of clothes; and, having killed a ſheep, and eaten the fleſh of it, they threw the ſkin round their ſhoulders, and wore it as a cloak. Thus did mankind, in the early ages of the world, cloath themſelves in the ſkins of animals. This led the way, to make clothes in other forms: jackets, or waiſtcoats, to put the arms through, which prevents their falling off, and left their arms at liberty, and trowſers or looſe breeches, to cover their lower parts, and leave their limbs unconfined. This is the dreſs of near half the people in the world, where their manners are not ſo poliſhed as in England, France, and other neighbouring ſtates. They cover their heads alſo with a cap, made likewiſe with ſkins, and their feet with ſhoes made of leather, which is the thick ſkin of animals, made ſtrong and ſtout by art.

Simple and plain then were the clothes of the firſt men. They had no pride; one wiſhed not to dreſs better than the other; they knew not what envy was, but, in clothing themſelves, ſtudied only to defend their bodies from the ſcorching heat of the ſun, from the rain, and from the pinching cold. There are many ſavage nations to this day, that wear no other covering than a piece of linen round their waiſts; namely, the natives of Guinea (of whom I have ſpoken), the old inhabitants of America, and others.

This was the ſtate of our anceſtors in this country, before the arrival of the Romans; they painted their bodies with figures of birds, and other animals, by way of ornament, but they wore no clothes: however, afterwards being accuſtomed to clothe themſelves, as I have obſerved, in ſkins, and finding ſuch clothes either too warm, too looſe, too heavy, or too awkward, to work in, they contrived to remedy the inconvenience; and, finding out the art of ſpinning the hair and wool of animals into thread, which is the profeſſion of the wool-comber and ſpinner, they next diſcovered the method of weaving ſuch thread into cloth; and thoſe who employ themſelves in this buſineſs, are called weavers and clothiers.

Linen and woolen clothes then being manufactured or made, the next contrivance was, to make it up into articles of dreſs. Linen is chiefly made into ſhirts, ſhifts, gowns, ſheets, table-cloths, and ſuch like; and, perſons ſo employed, are called ſempſtreſſes and mantua-makers. Woollen cloths conſiſt chiefly of broad-cloth, flannels, baize, druggets, and other kinds, according to their fineneſs and texture; and thoſe who make theſe up into articles of dreſs, are called taylors.

Now all theſe tradeſmen have been, or will be, ſpoken of in their turns. They are equally uſeful in their way, with huſbandmen who cultivate the land; for, whilſt one is tilling the earth, and growing of corn to feed his neighbours, they, in their turn, are breeding of ſheep for their wool; raiſing of flax, to make thread; ſpinning ſuch thread or wool, to make cloth; weaving of cloth, and making ſuch cloth into uſeful garments.

That man may be able to work, when dreſſed, it is proper that his clothes ſhould be ſo made, as to fit his body, and leave him at liberty to uſe his legs and his arms. This the art and trade of a taylor; who meaſures the perſon he is to dreſs, cuts out the clothes accordingly, and employs others to ſew the ſeams together, and make the materials into coats, waiſtcoats, and breeches.

Taylors uſe a variety of tools for this purpoſe; ſuch as irons, ſciſſars, ſheers, needles and thimbles; which being implements that ſempſtreſſes and mantua-makers (who are generally women) uſe, in making women's clothes, the buſineſs of a taylor has been rather looked on as contemptible, being an unmanly profeſſion; and for no other reaſon, than becauſe it partakes of the employment of women: for, was the trade properly conſidered, it may be called a profeſſion of ſcience; when, by the becomingneſs of the dreſs, and the elegance of the make, a ſuit of clothes will give faſhion, grace, and elegance, to the wearer.

There are many profeſſions engaged in the dreſs of man. The taylor makes only the coat, waiſtcoat, and breeches. The hat is made by the hatter, from the fur of the rabbit and the beaver; the ſtocking-maker weaves the ſtockings from ſpun-ſilk, worſted, or thread; the ſhoe-maker makes the ſhoes and boots from leather, prepared by the tanner; the peruke-maker makes the wig; and the buckle-maker, the buckles. The farmer grows the flax, for linen, or breeds the ſheep, from whoſe back the wool is ſhorn or cut; the flax-dreſſer prepares the firſt, the woolcomber, the ſecond. It then goes into the hands of the ſpinner, to make it into thread or worſted; thence to the weaver, to make that thread or worſted into cloth. Linen is next whitened by the bleacher, as we have ſeen; and figured by the callicoe-printers; and woollen cloths are variouſly coloured, by dyers.

When clothes are made up, they are ornamented by buttons, lace, ſpangles, embroidery, fringes, and decorations, invented to make them fine and ſhewy; and theſe ornaments employ a further number of people: and the ſeveral faſhions which fancy introduces, ſtill ſerve to advance trade, and give a livelihood to a number of induſtrious and ingenious perſons.

Such has, from time to time, been the progreſs of dreſs; which, from a ſheep-ſkin thrown over the ſhoulders of our fore-fathers, is now brought to a rich ſuit of clothes, ornamented and embelliſhed at a very great expence, and which expence is regulated by the fortune and wealth of the wearer.

Men's clothes (the ſuit) are worth from four guineas to fifty, or more, according to their richneſs, and the value of the materials with which they are made; ſtockings, from two ſhillings a pair, to eighteen ſhillings; ſhoes, from four ſhillings a pair, to ten ſhillings and ſix-pence; hats, from one ſhilling and ſix-pence each, to one guinea each; ſhirts, from four ſhillings each, to one guinea each; and buckles, from one ſhilling, to five guineas a pair.

TANNER AND CURRIER.

THE feet, by nature, were certainly never deſigned to be covered; for, by conſtant walking, the fleſh becomes callous and hard; and thus a perſon is proof againſt little injuries the feet would otherwiſe receive, from ſharp ſtones, thorns, or any ſuch thing they may tread on. Not to ſpeak of whole tribes of ſavage nations, that go bare-footed, we ſee children of the poor, even at the preſent day, without ſhoes or ſtockings, till they are eight or nine years old; and in Scotland, and ſome other countries, where men are accuſtomed to clothes, they ſeldom clothe the feet.

Man, however, in the habit of dreſſing his body, forgot no part of it; and, attentive to his own eaſe and comfort, dreſſed his legs equally with his arms. Having firſt invented wooden clogs, or ſandals, to ſave his feet from the ground, and enable him to travel on foot, without fatigue or injury, he next invented ſtockings, to cover the leg. Decency indeed requires, that the feet ſhould be covered; that, as they are more liable to dirt than any other part of the body, they may not offend the eye.

The covering of the foot being much ſubject to wear, it was requiſite to contrive ſomething durable, light, and pliant, that we might walk with eaſe and grace, not ſtump along like thoſe who wear wooden ſhoes. To this end, ſhoes were firſt made of the thick ſkins of animals, as is the caſe now with many ſavage people: but, the invention of man, which is ever at work, has found out, that, by the ſoaking thoſe ſkins in water, in which the bark of the oak-tree has been ſteeped, it hardens the ſkin, enables it to keep out the wet, and renders it far more durable than it otherwiſe would be. To prepare theſe ſkins or hides, is the buſineſs of the tanner and the currier. Theſe two trades are generally united in one. The buſineſs of the tanner, which is ſhewn behind in the print, is to prepare the ſkins or hides for the currier. For this purpoſe, they are laid, to the number of 18 or 20, in a heap for a few days; after which, they are hung up in a cloſe brick-building, heated with ſtoves. This is to warm the ſkins. Each hide is then laid on a beam, and the hair is ſcraped off with a crooked knife. This done, the hide is ſoaked in water for two or three days. It is then laid on the beam again, and the looſe fleſh, fat, and greaſe ſcrubbed, and worked out, with a fleſhing knife. After this, it it taken to a pit or vat, in which a liquor is prepared, by ſteeping the bark of the oak-tree, ground to powder, in water; and in this vat, the hide is ſoaked for ſome months; which fills the pores of the ſkin with the bark; and, when ſufficiently done, it is hung up to dry. It is now called leather; and in this ſtate it goes to the currier or leather-dreſſer; whoſe buſineſs is, to dreſs the hide, and make it ſoft, pliant, and fit for uſe.

The ſkin being firſt ſoaked in water, is rubbed, or ſcoured all over with a pummice-ſtone, to make it ſmooth, and to force out of the leather, a white ſort of ſubſtance, called the *bloom*, produced by the oak-bark, in tanning. The hide, or ſkin, is then hung up in the ſhade to dry, where it is oiled on both ſides, with oil produced by boiling ſheep-ſkins in oil, extracted from the cod-fiſh. This is called *ſtuffing* or *dubbing* the leather.

When the ſkin is thoroughly dry, it is rubbed with an inſtrument, to ſoften it; then pared to a certain thickneſs, and afterwards coloured.

A great variety of skins are thus made into leather, for particular uſes. Ox-hides are uſed for ſhoe-ſoles; bull and cow hides for ſadlers and collar-makers, and the roofs of coaches; buck-skins for breeches; lamb-skins and kid-skins, for gloves; calf's-skin for the upper parts of ſhoes, binding of books, and ſo on.

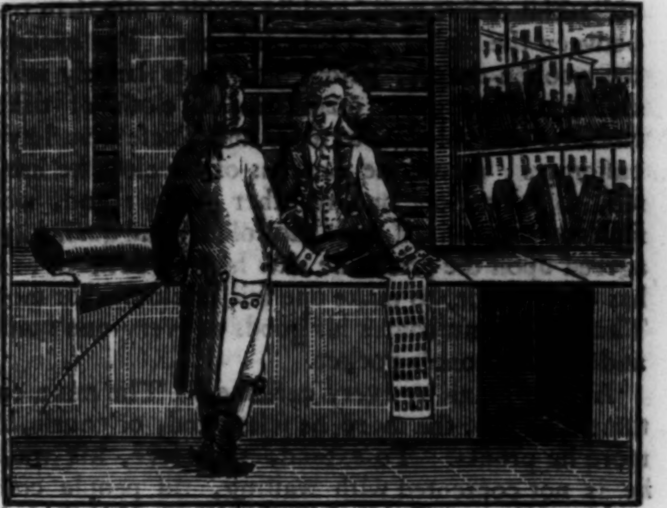
If the hair is preſerved on the skin, as it often is, for ſeveral purpoſes, namely, to line muffs, robes, cloaks. &c. the perſon who dreſſes the hair, cleanſes it, and uſes it, is called a Furrier; thoſe who convert leather into ſhoes, are called Shoe-makers.

SHOE-MAKER.

THE ſhoe-maker, having meaſured the foot, gets a laſt, or foot, cut out in wood, of the ſame ſize; on this, having cut out the ſeveral pieces of leather, the ſoles, the upper-leathers, and the quarters, he joins the whole together, by ſewing, in the following manner. Having prepared his thread, by waxing it, and pointed that thread, by fixing a hog's briſtle, or ſtiff hair, at the end of it, he makes a hole through the different parts of the leather with an awl, puſhes the briſtle through the hole, draws it out on the oppoſite ſide, and pulls the thread tight. The tools he uſes are a ſtone, which he lays on his lap, called a lap-ſtone; on which he beats out the thick ſole, having firſt wetted it in water; a pair of pinchers, to ſtretch it to his mind; a leather ſtrop, to hold the ſhoe firm on his lap, by his feet; hammers, to beat the leather; knives, to cut it; and awls, to pierce it. The heel is faſtened on with pegs.

Women's ſhoes are made of leather, ſtuffs, ſatin, &c. and the heels of wood, covered. Boots are alſo the manufacture of the ſhoe-maker. The price of boots are, from one guinea, to a guinea and a half a pair; men ſhoes, from five ſhillings, to ten ſhillings and ſix-pence a pair, according to their ſtrength, and goodneſs; and women's ſhoes, from five ſhillings, to fifteen ſhillings, according to their beauty, and the value of the materials with which they are made.

SHOPKEEPER.



WHEN men found abundant employ in manufactory, and making goods for others, as well as for themſelves and their families; and that they were daily and hourly called upon for ſuch articles as they had to ſpare, it was more than the buſineſs of one perſon, to attend upon their cuſtomers, receive orders from them, and provide them with ſuch things in their way, as theſe cuſtomers or buyers wanted. This introduced ſhop-keeping; which is, that of a man's purchaſing a variety of articles wholeſale, or in large quantities, from the manufacturer or maker; ſtocking a ſhop with ſuch goods, and ſelling them out retail, or in ſmall quantities, adapted to the wants and circumſtances of buyers. A maker of goods, by ſelling them in large quantities, can afford to, and does, ſell them cheaper, or for leſs money, than if he were to ſell them in ſmaller quantities. The ſhop-keeper then purchaſes them of the maker, wholeſale, at one price, and ſells them again retail, at a larger price; and the advanced price he ſo gets, that is, the profit, or gain, upon what he ſells, enables him to live well, and do nothing elſe than trade between the maker and the conſumer. For example, the woollen-draper, before us, deals largely with a clothier, buys great quantities of cloth of different ſorts and colours, to ſerve and pleaſe a variety of cuſtomers; ſhews the patterns of the cloth he has to ſell, to the taylor, or any other perſon; and, when ſuch taylor has fixed upon the colour, and quality, and agreed upon the price, he cuts him off as much as he has occaſion for, to make one ſuit of clothes, or more. Thus he accommodates his goods to every one's taſte, and to every one's pocket.

And he gains by every cuſtomer. The more cuſtomers he has, the more he ſells, and, of courſe, the more he profits. To extend, therefore, his trade, he is not contented with waiting, till people come to his ſhop to buy, but he applies to his friends, ſolicits them to lay out money with him, and employs men to ride through the country, many miles diſtant from his ſhop, to ſhew patterns of the cloth he ſells, to little ſhop-keepers, in the ſeveral country-towns he travels through, and prevail on them to deal with his employer. If the articles offered for ſale are good, and at a reaſonable price, ſuch riders, or travelling ſervants, will procure a great number of cuſtomers, that perhaps would find it difficult to furniſh themſelves with ſuch particular goods, as are, through this channel, offered them.

The ſhop-keeper, in the print before us, is diſplaying his patterns of cloth, and ſuppoſed to be giving his rider orders where to go, and whom to apply to.

Thus the clothier ſells to the woollen-draper, the woollen-draper to the country-ſhop-keeper, the country-ſhop-keeper to the taylor, and the taylor, to him that wears the cloth. Of courſe, between the maker, and the wearer or conſumer, there are four different tradeſmen and their families ſupported and maintained.

There are ſhop-keepers of various kinds, who deal in, and ſell, articles they do not, and cannot make. The hoſier ſells ſtockings he does not make; the linen-draper ſells linen he does not make; the ſilk-mercer ſells ſilk he does not make; the iron-monger, a variety of iron goods, as locks, grates, nails, and a hundred other things, none of which he makes. There are ſhop-keepers alſo, that ſell a variety of things, which they purchaſe of different manufacturers. A grocer, for example, ſells ſugar, which he buys of the ſugar-baker; ſoap, of the ſoap-boiler; and ſo on; and the haberdaſher deals in threads, tapes, needles, pins, ribbons, and a hundred other things, all of which are made by different manufacturers; and ſuch ſhop-keepers are very convenient to the public, who can, at that ſhop, meet with many things they want, without the trouble of running half the country over, in ſearch of the makers, who chiefly reſide at a diſtance from great towns, in places where proviſions and houſes are cheap, and where they can, by living on a little money, ſell their goods they make, at a little price; whereas, if ſuch articles were made in cities and great towns, where houſe-rent and proviſions are dear, makers would be obliged to raiſe the price of the goods they make, to enable them to live: but, by manufacturing them in cheap countries, and ſending them up to ſhop-keepers in cities and populous towns, by water-carriage, which is not expenſive, the inhabitants of ſuch cities and towns are able to purchaſe them almoſt as cheap, as if they bought them in the country where they were made, and without the trouble of going or ſending for them.

It requires time and application, as well to learn to be a good ſhop-keeper, as to be a manufacturer. To know the good and bad qualities of goods, their reſpective value, where to procure them of the beſt makers, and at the loweſt prices, and how and where to ſell them, is not learned in a month. Shops, in great towns, are ſometimes ſo noted, for ſelling articles in great variety, good of their kind, and reaſonable in price, as to have a great run of trade, from father to ſon, and ſon to grandſon; ſo that the good-will, or cuſtomers of a ſhop, ſhall often ſell for many hundred pounds, when a ſhop-keeper leaves off buſineſs, independent of the rent of his houſe, and his ſtock in trade; as, when a ſhop is once in reputation, buyers flock to that ſhop from all quarters, and the ſhop-keeper ſoon gets a fortune.

When trade is carried on in a more extenſive way, and perſons of one country trade with thoſe of another, ſuch perſons are called Merchants, and their trade, Commerce.

Commerce then is carried on by ſhipping; that is to ſay, goods are tranſported from one part of the world to another, by means of trading veſſels, or ſhips, the property of merchants, as I ſhall have occaſion to ſhew, when ſpeaking of travelling by ſea.

In large cities, theſe kinds of wholeſale traders, theſe merchants, meet daily on a particular ſpot, called an Exchange, as the Royal Exchange at London, and there tranſact a great deal of buſineſs, and ſell a great quantity of goods, without ever having ſuch goods in their poſſeſſion. One man, for example, wants fifty hogſheads of ſugar, not for himſelf, but for a cuſtomer in another country, perhaps 500 miles diſtant from him. He applies to a ſugar-merchant on the Exchange, who engages to procure it from the maker, in a ſtill more diſtant part of the world, and to deliver it at a time and place agreed on, all which he tranſacts by letters. He writes to the ſugar-maker, to ſend fifty hogſheads to ſuch a perſon, in ſuch a place, and at ſuch a time. The ſugar is ſent in a ſhip; and, when the perſon has received it, he writes to him whom he employed to buy it, deſiring him to pay for it, which is done upon the ſame Exchange as where it was firſt applied for: and ſo on in a hundred other things, as well as in ſugar.

But there are other merchants that ſend to all parts of the world for goods, put them into warehouſes, and ſell them from home, to occaſional cuſtomers; and, in countries where there is no money to trade with, things are ſold by barter, that is, exchanging one kind of goods for another, according to weight, meaſure, and value.

Before us are aſſembled on a quay, or bank of a river, a number of traders from every country, bartering or exchanging one kind of goods, by weight, for another. Here is an Engliſhman, a Chineſe, a Turk, a Jew, and others; and the ſhip behind, tells us that the goods thus ſold are brought by ſea, from a diſtant part of the world: for, ſince the invention of writing, and introduction of the poſt, which is, conveying of letters from place to place, a correſpondence is kept up between merchants and traders in different countries; and the produce of one country may always be procured, either by money or barter, for the produce of another; and the wants and indulgencies of men are thus readily gratified.

But

But in the interior or inland parts of a country, nay almoſt in every market town, markets are eſtabliſhed for the convenience of the people; and ſuch towns are called market-towns. At theſe places, on one or two particular days of each week, all ſorts of proviſions, and uſeful utenſils, are brought from neighbouring places and manufactories, for the accommodation of thoſe who want ſuch things, without giving them the trouble of travelling far, to find them; and for the further convenience of farmers and others, diſpoſing readily of what they have to ſell.

In the print before us we ſee, brought into one place, and expoſed to ſale, cattle, meat, fiſh, poultry, fruit, corn, wooden and earthen ware, linen, drapery, and a variety of articles which people, living in retired parts of the country, where there are no capital ſhop-keepers, are conſtantly in want of, and which, by coming to ſuch towns on market-days, they are ſure to meet with. A man, having a cow to ſell, drives it to market; and he who wants to buy, goes to market likewiſe. Here then they meet; the one ſells, the other buys, and thus the purpoſes of both are anſwered.

It is not, however, in every market, that cattle are brought for ſale. To remedy this deficiency, in different parts of the country, faris are eſtabliſhed on one or two particular days of the year. These are a kind of general market, where a great number of dealers, for many miles round, aſſemble to buy and ſell. Such fairs or markets are ſupplied with all ſorts of cattle, horſes, cows, ſheep, hogs; and, in order to divert the people, when the buſineſs of the day is over, there are ſundry amuſements introduced, as puppet-ſhews, tumbling, rope-dancing, and the like.

There are ſeveral great fairs in England, where particular articles are ſold in great abundance, beſides ſuch as I have mentioned; for example, cheeſe, at Wey-hill-fair; hops, at Stourbridge fair; and linen at Cheſter-fair To theſe places tradeſmen will travel from the remoteſt parts of the country, to purchaſe what they want for the year following; and here they will meet with a variety of goods, in the greateſt quantity and perfection.

It is by ſuch contrivances that the ſeveral wants of mankind are ſupplied. What would the inhabitants of great towns do, was it not for their markets? For inſtance, London, that contains a million or two of people, how are they fed? By their markets; to which people are conſtantly bringing cattle and proviſions from very diſtant parts of the country round. Smithfield is a beaſt-market, where many thouſand heads of cattle are every week ſold; Covent-garden is the great market for fruit and vegetables; Mark-lane, for corn; and Billingſgate, that for fiſh: and there are ſundry other markets, for meat, poultry, butter, cheeſe, &c. In country-towns, one market furniſhes the whole: but, in more retired places, where no markets are held, the people are under the neceſſity of buying of their neighbours, or travelling a few miles, to the next market-town.

GARDENING.

WHEN men found, that one part of their food was to be herbs and the produce of the field, they ſelected ſuch plants as were wholeſome, and fit to be eaten, planted them in a ſpot by themſelves, fenced that ſpot in, from the ravage of animals, and called it a Garden. They planted alſo ſuch trees in this garden, as bore fruit pleaſant to the taſte; and whilſt they ſtudied to gratify the palate, they took ſome pains to pleaſe the eye, and regale the noſe. They planted it with ſhrubs and flowers, laid it out in walks and lawns; and, as water was neceſſary to refreſh theſe plants in dry weather, they took care to dig ponds, and make canals, where water was eaſily to be had; and, where it was not ſo, to ſink wells.

Gardening then was the origin of agriculture or farming. Fruits and flowers were at firſt wild: they grew without the leaſt culture, as we ſee many do, in the fields, at preſent. Crabs are wild apples; ſloes, wild plumbs; and, in woods, there are wild ſtrawberries, raſberries, nuts, and other fruits. There are alſo wild roſes, wild honey-ſuckles, wild poppies, and ſo on; but the ſkill of man has, by care and cultivation, improved them conſiderably.

Taking a tree from a poor ſoil, and planting it in a good one, improves the fruit, and, thus improved, it may be continued in its improved ſtate, by what gardeners call *grafting*; that is, by cutting off the head of a wild tree, ſplitting the ſtem, and putting into the ſlit, a twig or ſhoot, of an improved tree of the ſame kind. The ſhoot ſo put in, will grow, become a tree, and bear the ſame ſort of fruit, as the tree does from which the ſhoot is taken.

In all trees, the ſap or juice circulates throughout all its branches, as we have ſeen the blood does, in the human body. This ſap riſes from the root, to the twig, or graft, that is put into the ſtem of the tree, and cauſes it to grow.

Wild herbs are too rank for men to eat, till they have been corrected and improved in gardens; but, by undergoing a better cultivation, they are rendered palatable and wholeſome.

It is the province or buſineſs then of a gardener, to dreſs the ground, that is, enrich it. This he does, by mixing it with horſe-dung, the litter of ſtables or farm-yards, chalk, aſhes, or any kind of manure, that will give freſh ſtrength to the land. He then digs the ground, with a ſpade, to lighten it; ſows it with ſeed, rakes it even, with a rake, and, in dry weather, ſprinkles it with water. As the plant grows, he draws the earth about it, ſupports it with a ſtake, if not able to ſupport itſelf; and lets it grow, till it is fit for the table.

Every plant and flower, like men and beaſts, produces its like. The ſeed of the plant being ſown in the ground in ſpring, riſes in a ſtem, flouriſhes, flowers, produces its ſeed, in ſummer; withers, in autumn, and dies in winter: and that ſeed, being ſown again in the ſpring following, grows, as did the parent-plant, the year before. So man, and animals, breed; that is, produce their like, and, in length of time die: and their young, or offspring, do the ſame, one generation after another.

The ſeveral plants of the kitchen, are cabbages, coleworts, cauliflowers, brocoli, ſpinach, aſparagus, endive, lettuce, muſtard, creſſes, celery, ſage, mint, balm, thyme, parſley. Of theſe we eat the plant itſelf. Of peas, beans, and French-beans, we eat the ſeed only, when young; of cucumbers, the fruit; and of the following, the roots; carrots, turneps, parſneps, potatoes, onions, radiſhes, beets. All theſe plants and roots are the produce of a kitchen-garden, and are called culinary herbs and vegetables.

Fruit is alſo the produce of a kitchen-garden, and grows on trees and buſhes. The ſeveral ſorts of fruit-trees, are apples, pears, cherries, plumbs, mulberries, peaches, apricots, nectarines, figs, walnuts, grapes. Thoſe which grew on buſhes, are currants, gooſeberries, raſpberries, barberries, and filberts. Strawberries, and melons, grow low on the ground. Apples, pears, and cherries, are often planted in graſs-grounds, and ſnch places are called Orchards.

In warm climates or countries, fruit grows to greater perfection, and is much ſweeter, and larger, than in cold ones. Indeed there are ſome ſorrs of fruit, that will not grow in the open air of this country, it being too cold for them. Theſe fruits are pine-apples and melons. To produce then ſuch fruits, gardeners plant them under cover, in frames, or in hot-houſes; which are buildings erected on purgoſe, heated with fires, and covered with glaſs-windows, ſo as to let in the ſun. There are plants that will thrive here in ſummer-time, but cannot endure our winter's cold. Theſe are called exotics, or green-houſe plants; ſuch are lemons, oranges, and the like; and are preſerved in green-houſes during the winter; which are large rooms, full of windows in front, to let in the light and ſun: for it is the ſun that cauſes all plants to grow: without its light and heat, they would wither and die.

Such is the art and contrivance of man, that they will change the very climate, in order to gratify the palates of thoſe who can afford to pay for it; and ſuch is the luxury and folly of the world, that they will pleaſe their taſte at any expence.

As, by education, maſters form and faſhion youth well; ſo gardeners, by cultivation and by pruning, that is, by cutting off uſeleſs ſhoots, irregular and weak branches, give ſtrength to a tree, beauty to its form, and flavour to its fruit.

A pleaſure-garden is an improvement upon nature. We find trees, ſhrubs, water, and walks, hill and valley, naturally formed in many places; but ſeldom find the whole within the limits of ſuch a ſpot of ground, as men can walk over. To ornament their country-dwellings, therefore, men of taſte and opulence have endeavoured to collect theſe beauties in one place. A few acres of irregular ground, happily formed, by nature, into hill and dale, with water running through them, may, by art, be made beautifully picturesque, or pleaſing as a picture. By cutting through a wood of trees, we make avenues aud viſtos; which are rendered more pleaſing, if the opening is a long one, and there is ſome object to be ſeen at the further end. Flat ground is generally laid out in lawns, which is, graſs kept conſtantly cut ſhort, with ſcythes, and then reſembling a green carpet. This is decorated, according to the fancy of the gardener, with clumps of trees, or ſpots of flowering ſhrubs, Round theſe lawns are ſerpentine, or winding walks, laid with gravel, bordered with beds of flowers, and leading to ſome pleaſurable building, or ſummer-houſe, towers, aviaries, or ſtanding cages, in which birds breed and ſing; to canals, with bridges over them; or to pieces of water, reſembling rivers, with caſcades or water-falls. Great is the fancy and taſte of ſome men; and, where they have a good fortune, their country-reſidence is a little paradiſe.

Flowers are too numerous to mention. Some creep on the ground, others climb, by winding round an adjoining tree; and others ſtand upright of themſelves. Moſt of them yield a fragrant ſmell, and all enchant the eye, by their beautiful and varied colours. So wonderful and rich are the bounties of Providence!

CATCHING WILD ANIMALS.

MAN, being pleaſed with the taſte of animal food, and accuſtomed to the uſe of it, became a conſtant enemy to all ſuch animals as were fit to eat; that is, he hunted after ſuch beaſts, birds, &c. as did not prey or live upon other animals. And theſe were only caught by purſuing them: but, they being ſwifter of foot than himſelf, it became, in a little time, impoſſible to take them in this way; for, when ſuch animals found that man was their purſuer, they fled from him, as they did from the ravenous beaſts of the foreſt, and put him to the neceſſity of inventing traps to catch them.

Traps are of various kinds. Some are made, to take animals alive; ſome, to catch them by the leg or neck. Thoſe of the former kind are pits, covered over ſlightly, which they fall into as they paſs; hutches or boxes, into which they run for food there placed; and nets ſpread in their way. Of the firſt, are falling traps, made with wood, which fall on them as they paſs, and hold them tight; ſuch as that repreſented in the corner; or gins, or ſpring-traps, which fly up, and ſeize the animal by the ear, neck, or leg; ſuch as is here deſcribed, having caught a fox. When nets are ſpread, the animal is entangled in them. There are a great number of ingenious traps, to catch animals; ſome, peculiar to one country; ſome, to another; but the principal of all, is decoying the animal into them, by placing food within them, and laying them in the tracks which ſuch animals paſs. When the trap is ſet, it is left for ſome hours, the perſons who ſet it, lurking at ſome diſtance, or they are left to the next day, when the hunters viſit it, and hope to find it charged with ſome game or ſpoil. The larger animals, as buffaloes, elephants, tygers, and the like, are caught in pits; the ſmaller ones, as foxes, weaſels, and the like, in traps.

It is owing to theſe traps, that ſo great a number of animals are continually caught, in deſart countries, where the natives carry on an extenſive trade in skins and furs. It being the fur of ſuch animals as line and ornament our cloaks, muffs, &c. and the manufacturer who dreſſes and prepares ſuch furs, is called a Furrier.

In the civilized ſtate of man, hunting is taken up and followed more as an amuſement, than as an occupation or employment.

Hunting the wild boar, in Lapland, is an occupation; but, in the wilds of Germany, and Tartary, and other countries, it is little more than a diverſion.

The print before us exhibits a Tartar bear-hunt; on which occaſion, the Tartars in Siberia ride very ſpirited horſes, one of which, in the preſent drawing, which was taken from an actual hunt, ſtruck at the boar with as much fierceneſs as can be conceived; and, having overthrown him, he was killed by a lance.

* * *

In England, the people are contented with hunting foxes, deer, and hares. The picture here given, is that of buck or deer hunting, in the neighbourhood of ſome gentleman's ſeat, in a foreſt. The wild deer of this country, inhabit foreſts and wild places; and the dogs bred up to this exerciſe, purſue them, not by the ſight, but by the ſcent or ſmell. A buck-hound has ſo delicate a noſe, that, when once he ſmells the foot of the deer on the ground where he trod, he will purſue that ſcent, from tread to tread, a whole day; and, though the deer or ſtag, ſhall not be ſeen by him at all, he will, by the ſcent of his foot, follow him, tire him out, run him down, and kill him.

In the next print, we have a diſtant view of the diverſion of courſing, or catching a hare with greyhounds. Theſe are ſwift-running dogs, that will out-run the ſwifteſt hare; and, not having the gift of ſmelling, as hounds have, can only follow it by by the ſight. This ſport is generally purſued on foot; for a hare, if ſeen by a couple of grey-hounds, will be caught before it can run three or four hundred yards: whereas, if a hare is hunted by beagles or hare-hounds, who hunt by the ſmell, they will be many hours before they tire her, and catch her; and, to prevent fatigue, the ſportmen generally ride on horſeback.

Shooting is another ſport of the field, and is chiefly confined to birds. Though ſometimes ſportſmen will ſhoot at hares, and ſometimes at fiſh, which they ſee basking in the ſun, on the ſurface of the water. The dogs bred up to the gun are called Spaniels and Pointers. Thoſe before us are pointers, who will ſmell a partridge long before they ſee it, or come up to it. With two or three ſuch dogs, the ſportſman hunts the corn-fields, where theſe birds breed, as do chicken in a farm-yard. Theſe dogs are taught to hunt a large field in a very little time, by running over every part of it, acroſs and acroſs, whilſt the gunner ſtands at the gate, looking on. As ſoon as theſe dogs ſmell a covey or flock of partridges, they will ſtand ſtill, like a ſtatue, pointing with their noſe, to the place where they lie: and ſo well trained are they to be cautious of diſturbing them, that, if one dog ſmells, and points them, the other will ſtand ſtock-ſtill, as is ſhewn here, though he does not ſmell them. When the gunner ſees that the dog points, he goes up to the ſpot where the birds lie, diſturbs them, puts them to flight, and then ſhoots at them. If he kills or wounds a bird, the dog will immediately run after it, and bring it to him.

Sometimes ſuch birds are taken, by drawing a net over the whole covey, dog and all. Dogs have been known to ſtand motionleſs for many hours, pointing to the birds, whilſt ſportſmen have gone ſeveral miles to fetch a net. A good dog will never move, whilſt the bird will lie. Such dogs as are uſed to the net, are called *ſetters*, becauſe they are taught to ſit, ſquat, or crouch down cloſe to the ground, that the net may be drawn eaſily over them, inſtead of ſtanding up, and pointing at them, as pointers do.

Thoſe who ſhoot ducks and water-fowl, have water-ſpaniels, who will go into the water, and hunt amongſt the weeds, where the ſportman will not like to follow him, and thus put up the birds; that is, make them fly, that he may have an opportunity to ſhoot at them.

FISHING.

Another kind of country ſport is fiſh-hunting, commonly called fiſhing. This is an occupation or profeſſion. Numbers of men get their bread by fiſhing in the ſea; but this is done with nets. They go out to particular ſpots, at ſome diſtance from the ſhore; drop a very long net, called a Drag-net, from their boats; and two boats, with ſome men in each, taking hold of the ends of the net, will drag this net a mile or two; and the net, being ſo formed as to entangle the fiſh that ſwims againſt it, when they draw the net out of the water into their boats, they will often find it full of fiſh.

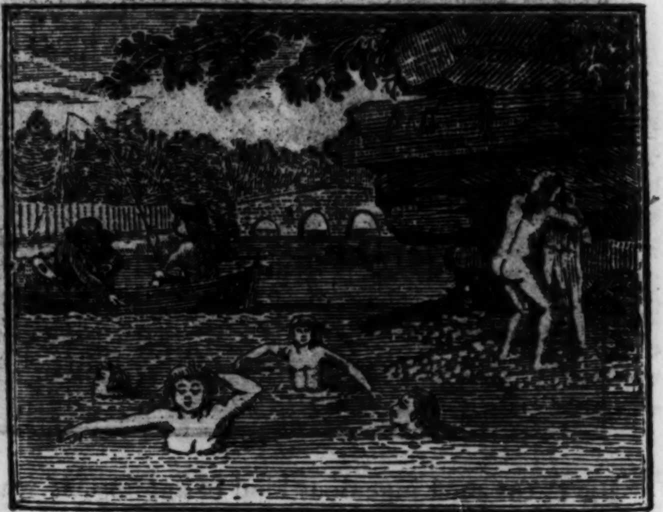
Thoſe who fiſh in large rivers do the ſame. We ſee ſuch a drag-net before us. The men here, being on ſhore, drag the net on both ſides the river; and, after a certain time, draw it on ſhore. Theſe men frequently go up to their knees in water; but wear ſuch boots as the water will not penetrate, or ſoak into; of courſe, their legs and feet are kept dry.

The man who fiſhes for amuſement, is called an Angler. His weapon is a long, ſlender fiſhing-rod; which he faſtens a long hair line; at the end of which is a ſteel hook, that carries a bait; ſuch as a worm, a ſmall fiſh, or a piece of paſte, as food for the fiſh he wiſhes to catch. This hook, with the bait, is let down into the water, to a certain depth; and if the fiſh ſees it, and bites at it, the angler, who keeps his eye on the line, jerks, and hooks the fiſh; that is, catches the fiſh on the hook, and draws him out.

ANGLING.

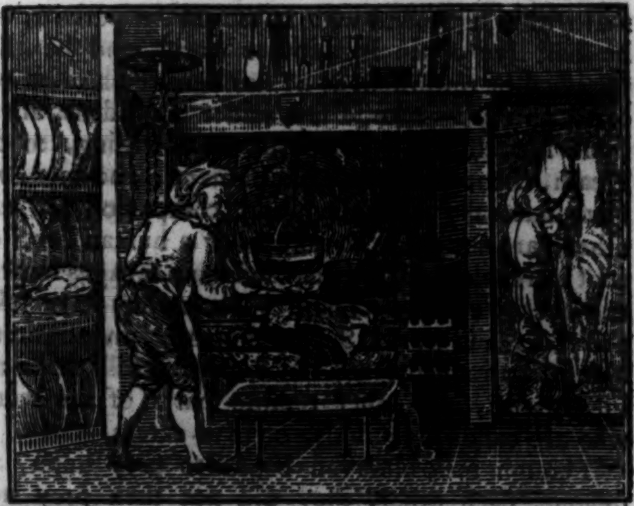
BUT the moſt ingenious kind of angling, is what is called fly-fiſhing. At certain times of the year, particular ſorts of flies ſwim about on the top of the water, and become food for the fiſh beneath. The angler knowing this, and what kind of fly certain fiſhes like beſt, makes ſuch flies to imitate real ones, places them upon his hook, and throws his line, ſo as to keep the fly upon the ſurface of the water, and make it appear as ſwimming. He watches his fly, and when any fiſh bites at it, jerks his line, hooks the fiſh by the mouth, and draws it out. The man in the back part of the picture, is angling, or bottom-fiſhing, by letting his bait down into the water; the one in the front of it, is fly-fiſhing, for trout, upon the ſurface of the water.

The men in the boat, beyond the ſwimmers, in the next cut, are alſo angling, by bottom-fiſhing: for, though anglers chiefly ſtand on the banks of ſmall rivers to fiſh, yet, when rivers are wide, they will angle from a boat.



So various are the inventions of men, for catching animals deſtined for their food.

The BUTCHER and COOK.



GOD, having given man the power of reaſoning, and a diſtinguiſhing taſte, and having placed him in the world, with every thing before him for his uſe, left him to himſelf. Nature taught him to eat, when he was hungry, and to ſleep, when he wanted reſt: and, as to knowledge, he acquired it by obſervation. He ſaw the beaſts of the field eat graſs, and the herbs of the field, and *he* did the ſame; convinced, if ſuch things did not hurt thoſe animals, they would not hurt *him*. Finding them pleaſant to the taſte, he tried almoſt all things that grew, not only herbs, but fruits, and found them palatable and wholeſome.

As men increaſed in the world, obſervation increaſed with them; and, ſeeing that one animal fed upon, and devoured, another, without any injury to itſelf, they did the ſame. Man indeed did not ſlay his fellow-creature for this purpoſe. To an animal, who has no apprehenſion of death, that is, no fear of dying, having no foreſight, nor any dread of futurity, death has no terror; but man, who has a ſoul within him, and who is taught to believe, that he ſhall live again in another world, and be there puniſhed or rewarded, as he has behaved himſelf well or ill, in this:—man, I ſay, under ſuch ideas, always finds himſelf unfit, of courſe, is unwilling, to die. Death, then, to him is a puniſhment; and men, who have naturally a feeling and compaſſion for each other, are not ready to take away a human life, except in revenge. This has led ſome ſavages to broil, and eat thoſe fellow-creatures whom they have taken priſoners in war. Such inhuman, unenlightened beings are indeed few; but ſome few ſtill there are, in America, and other remote parts of the world, who are called Cannibals, or man-eaters.

Though men obſerved beaſts to prey upon, and devour, each other, they did not then prey upon themſelves, or kill each other for food; but they killed ſuch animals as fell in their way; and liking the taſte of meat, and finding it gave them ſpirits, and greater ſtrength than whilſt they lived wholly upon herbs, they thenceforth made it part of their food; but killed only ſuch animals as were naturally tame, and they were able to catch. Wild beaſts were beyond their purſuit; and, well that they were ſo, as, were they able to catch them, they would not be fit to eat. Animals that devour, and live upon the fleſh of other animals, are naturally wild, difficult to be caught, and not wholeſome to be eaten by man: but ſheep and oxen, and ſuch animals as live upon graſs, are naturally tame, and very eaſily taken.

Cattle then, or beaſts of the field, ſuch as oxen, cows, calves, ſheep, lambs, deer, goats, pigs, hares, and rabbits, are eaten as food; but the beaſts of the foreſt are not eaten by men. Theſe are lions, tygers, wolves, foxes, and ſuch like. Horſes are beaſts of the field, and are eaten in ſome countries; but, being too uſeful to man to be ſlaughtered, and killed for food, the people in general have refrained from eating them.

Cattle then, for food, are bred and fattened by farmers, and driven by them to markets and fairs, where they are ſold to butchers; whoſe profeſſion it is, to kill, cut them up, and ſell them out, to private families, in joints and pieces. The places where they are killed, are called ſlaughter-houſes; and the ſhops in markets, where they are ſold, are called ſhambles.

The fleſh of the ox is called beef; that of the ſheep, mutton; that of the deer, veniſon; that of the calf, veal; and that of the hog, pork. All meat is ſold by the pound weight, and is worth from

3d. to 6d. a pound, according to the particular joints or parts of the meat ſold.

Fiſh and fowl is not conſidered as butcher's meat. Fiſh is ſold by a fiſh-monger, and fowls, by the poulterer. A great variety of fiſh is brought to table; but the chief diſtinction is that of ſea-fiſh and river-fiſh. The principal ſea-fiſh eaten, is cod, turbot, ſcate, place, mackrell, hollibut, whitings, herrings, ſoals, lobſters, oyſters, crabs, ſhrimps, prawns, ſprats, &c. The principal river-fiſh, ſalmon, ſmelts, carp, tench, trout, gudgeons, roach, flounders, graylings, and eels.

Fowls, which are ſold by poulterers, are diſtinguiſhed into wild-fowl and tame fowl. The firſt are, pheaſants, partridges, quails, growſe, and guinea-hens; wild-ducks, widgeons, teal, ſnipes, woodcocks, and ſmall birds. Tame fowls, are chickens, turkeys, pidgeons, geeſe, and tame ducks. Rabbits are alſo ſold by poulterers; but pheaſants, partridges, growſe, and hares, are conſidered as game, are preſerved by gentlemen, to amuſe themſelves in hunting and ſhooting, and not ſuffered to be ſold. When we ſee them at table, they are either killed on a gentleman's own eſtate, or made a preſent by him to his friends.

When meat, fiſh, or fowl, is prepared by the butcher, fiſhmonger, and poulterer, for the kitchen, it is dreſſed for the table by the Cook, who has a variety of ways of rendering it agreeable to the palate. Some is boiled, ſome ſtewed, ſome fried, ſome broiled, and ſome roaſted; and the ſeveral diſhes are ſeaſoned with ſpices, to correct their ill effects, and render them wholeſome, and fit to be eaten.

Cookery is, in this age, not only a profeſſion, but a ſcience; for men will ſtudy as much to gratify their palates, as to pleaſe their eyes or their ears; and a good cook ſhall be as much thought of, as an eminent painter or muſician. Indeed, cookery, in large towns, is become a trade; and all kinds of meats are dreſſed and ſold out, hot, to private families; pyes, puddings, and tarts, are furniſhed by another ſet of men, called paſtry-cooks; and the deſert, which comes the laſt, is prepared and ſerved up by the confectioner, whoſe art conſiſts in preſerving fruits in ſugar, and making all kinds of ſweet-meats.

THE BAKER.

IN a very little time, men found, that, though it is was neceſſary to health, that they ſhould eat vegetable food as well as animal, that is, the herbs of the garden as well as the fleſh of beaſts; yet, the produce of the garden was not ſufficient to correct the ill effects of meat; and therefore they began to eat ground corn, ſuch as wheat, barley, and oats. Of theſe they found wheat the moſt nutritive; and therefore, to render it more ſolid, palatable, and fit for general diet, made it into a kind of paſte, and baked it; in which ſtate it is called Bread.

In farm-houſes, and country-places, families make their own bread; but in populous towns, where people are employed in trade and manufactures, there are perſons who make baking a profeſſion, bake bread daily for ſale, and ſupply families with it. Theſe are called Bakers.

The method of making bread is as follows. Having bought the flour of the miller, whoſe buſineſs it is to grind the wheat, the baker takes a certain quantity, mixes it with water, and a little yeaſt, which is the froth of new made beer, as will be ſhewn by and by, and then makes it into a paſte, by kneading it in a trough; that is, by working it up with his hands. The bread in this ſtate, before it is baked, is called Dough. A proportionate quantity of the yeaſt they mix with it, has a property of lightening the dough, and rendering it palatable, and fit to eat; but too great a quantity makes it bitter and unpleaſant.

When the dough is made, it is cut into ſquare pieces, the ſize of a loaf; and each piece is placed on a peal, and put ſingly into an open, made hot with fire; and, when the oven is filled, it is ſhut up cloſe, and, in an hour or two, the bread is ſufficiently dried, or baked, and fit for uſe.

Loaves are made of various ſizes; peck-loaves, half-pecks, and quarterns; ſo called, from the quantity of flour uſed in making ſuch a loaf. As this is an article which the poor are obliged to buy; that bakers may not rob and cheat the poor, government fixes the price of bread, and directs the weight of flour each loaf ſhall contain. A quartern loaf is uſually ſold for ſeven pence, and larger loaves in proportion.

The different kind of rolls are made of flour, like bread; but mixed up differently.

In ſome countries, the poor people eat barley-bread, oat-bread, and rye-bread, all theſe being cheaper than wheaten-bread: but, as wheaten-bread is moſt wholeſome, little elſe is made in London.

Bakers uſually make their bread in the night-time, that they may be able to ſerve their cuſtomers with new bread in the morning, at breakfaſt.

VINTAGE.

NEXT to eatables, men found it requiſite to provide liquors to drink. Though water is the natural drink of man, as well as other animals; the conſtant uſe of water, to thoſe who are obliged to work hard, is too weak and too poor, to ſupport their ſtrength, and recruit their ſpirits.

It was ſoon diſcovered, that fruits and vegetables, being mixed with water, and ſuffered ſome time to lie in that ſtate, fermented, and became ſtrong and ſpirituous; and, when drank prudently, not only raiſed the ſpirits, but ſtrengthened the drinker. This introduced the making of wine.

Wine is the juice of grapes, ſqueezed out, ſtrained, and ſuffered to get ſtrong by fermentation. Wine is not made in this country, becauſe the climate is too cold to ripen the fruit properly; but it is made almoſt every where in warmer climates, as in France, Spain, Italy, &c.

The vine is a tree that requires ſupport. In England, it is nailed up againſt a wall; but, in wine-countries, vine-trees are planted in the common fields, are ſupported by ſtakes, as hops are here, and not ſuffered to run higher than four feet above the ground. At vintage, that is, at harveſt, in the month of September or October, the grapes are gathered, and put into large tubs or veſſels, where they are trodden by men's feet, till the juice is ſufficiently preſſed out, and which is drawn off into other veſſels. After ſtanding ſome time to ferment, it is barelled up, and ſtowed away for ſome months. In theſe hogſheads or barrels it ferments a ſecond time. It is then fined down, or cleared, with iſinglaſs, or ſome other ingredient, and then drawn off into freſh caſks, where it is kept for ſale.

In ſuch caſks, it it is exported or conveyed to different countries. The exporter is called a Merchant; the importer, or the buyer, a Wine-merchant: he who bottles it off, for uſe, is called a Wine-cooper.

The wines of different countries bear different names and prices, according to their qualities. Burgundy, champaigne, and claret, are the produce of France. Burgundy is ſold here for eight ſhillings a bottle, or quart; champaigne, for ſeven ſhillings a bottle; and claret, for five ſhillings. Old hock is made in Germany, and ſold for ſeven ſhillings a bottle. Sherry, mountain, and malaga, are white wines, and the produce of Spain; and are ſold for about half a crown

crown a bottle. Madeira is made at the iſland of Madeira, and is worth three ſhillings and ſix-pence a bottle. Port wine is brought from Oporto, in Portugal, and ſold for two ſhillings a bottle; and Tokay is made in Hungary, and ſold for one guinea a bottle. There are other kinds o wine, the produce of other countries; and all wines differ in taſte and flavour, according to the nature of the ſoil or ground, in which the vines grow, in the ſame manner, as the beers of England differ in taſte and flavour, according to the ſoil of the countries where the malt is grown. Men of opulence pride themſelves on the goodneſs of their wines, will keep them many years to mellow them; and, a bottle of wine, that, when new, ſhall be worth only two ſhillings, when ten or twelve years old, will fetch double the money.

In wine-countries, the common people drink ſmall wines at their meals, as we do ſmall beer; but, no wines being made in this country, we are contented to drink beer, which is a liquor brewed from malt; and he who makes brewing a profeſſion, is called a Brewer.

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§

THE BREWER.

IT is not neceſſary to give a receipt for making beer, but I will, for the information of my young readers, give them ſome little inſight into the art of Brewing.

Malt, from which beer is made, is barley, ſuffered to lie in a heap, and wetted, till it ſhoots; that is, till it begins to ſpear, or grow. In this ſtate, it is put into a kiln, or hot place, to dry. After this, it is ground, and ſold to the brewer.

A certain quantity of malt being put into a meſh-tub, boiling water is thrown in upon it; where it lies covered for ſome time, that the water may draw, or extract, the ſpirit or ſtrength from the malt. When it has ſtood long enough for this purpoſe, the wort, that is the water ſo ſteeped, is drawn off, put into a copper, and boiled, with the addition of a ſmall quantity of hops; a plant that gives the wort an agreeable bitter, and enables it to be kept for ſome months, without turning ſour.

When the wort has been boiled an hour or two with the hops, it is taken out, ſtrained, and put into ſhallow, wooden veſſels, called Coolers, to cool; and, when cold, it is barelled up. In theſe barrels it ferments, throws off a froth, called Yeaſt, becomes fine, and is fit to drink in a few months.

The firſt quantity of water that is thrown on the malt, draws the greateſt part of the ſpirit or ſtrength from that malt, and is generally Strong beer. When this water, or wort, is drawn off, a ſecond quantity of water is thrown on; and this ſecond brewing, having leſs ſtrength than the firſt, is called Small beer; but ſmall beer undergoes the ſame proceſs, or manner of making, as does the ſtrong.

When all the ſtrength is drawn from the malt, the malt is called Grains, and is ſold for the feed of horſes, cows, and hogs.

Beer, brewed in London, is called Porter; that in the country, Strong-beer or Ale; and, there are counties in England, famous for their ales, as Dorſetſhire, Yorkſhire, Wiltſhire, Nottinghamſhire, &c. A gallon, that is, four quarts, of ale, is worth a ſhilling.

In many parts of England, particularly the Weſt, great quantities of cyder are made; that is, a wine made of the juice of apples, preſſed out, like the juice of grapes; and perry, which is a liquor, made in the ſame manner, with the juice of pears. Cyder and perry is worth one ſhilling and four pence a gallon.

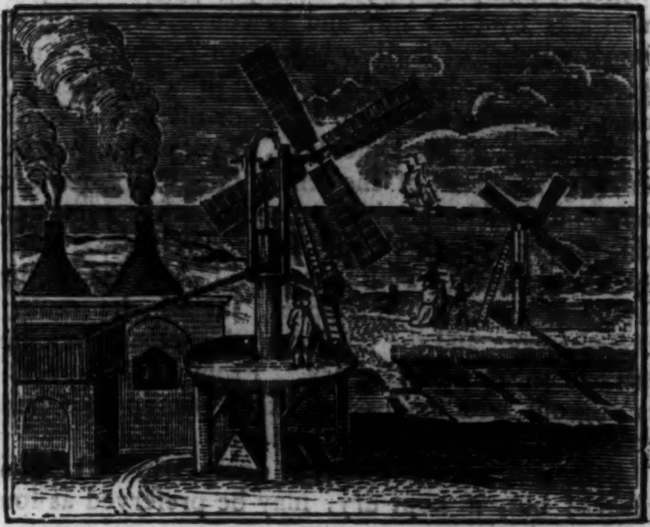
There is ſtill another method of making ſtrong liquors, which is called Diſtilling; and the perſon employed in this buſineſs, is called a Diſtiller.

This is by drawing off the ſteam of the dregs of wine, malt, or other grain, by means of fire, and certain chemical veſſels ; but, as the mode of doing it is beyond the comprehenſion of young minds, it will be uſeleſs to deſcribe it. It is ſufficient to ſay, that Rum, Brandy, Geneva, and malt-ſpirits, are diſtilled liquors. Rum is diſtilled from the ſugar-cane, and made in the Weſt-Indies; brandy is diſtilled from wine, and made in France ; geneva is diſtilled from juniper-berries, and is made in Holland ; and malt-ſpirits are diſtilled from malt, and made in England.

Theſe ſpirits are of ſuch ſtrength, that they will burn, when ſet fire to, like oil. They are always better, in proportion to the time they are kept. If mixed with three-fourth parts of water, they are about as ſtrong as wine ; but, if drank alone, are very hot and fiery.

Good rum is worth here about ten ſhillings a gallon ; brandy and geneva, about twelve ſhillings ; and malt-ſpirits, about ſix ſhillings.

SALT-PANS.



NATURE has furniſhed mankind with ſalt; though its particular uſes in the nouriſhment of the body has not yet been aſcertained. We know that ſalt is coveted with our food, and that our meals are inſipid or unſavory without it; but we know not of what utility it is to the human conſtitution.

Salt will keep meat from putrefying. By ſalting meat, fiſh, &c. we can keep it a long time; but it muſt have ſome wholeſome properties paſt our finding out, or we ſhould not wiſh for it as we do.

Now nature has ſeveral methods of providing us with ſalt. In ſome countries, it is thrown up upon the ſurface of the land, and then collected for our uſe. In other countries, it is dug out of the earth, from ſalt-pits: in others again, it is found in rocks; this is called Rock-ſalt. But the general way of procuring it, is from ſea-water, which is fully impregnated with ſalt.

The method of doing this is as follows. The ſalt-pans are generally near the ſea-ſide; the water from which is pumped up by a wind-pump, that is, a pump that acts by the wind, and is conveyed, by ſpouts, into a number of ſhallow baſons, or reſervoirs, on the ground, formed with clay, about three or four inches deep, and from twenty to forty, or more, feet ſquare. Here the water lies ſome days, to evaporate, which it does by the heat of the ſun. The watry parts fly off, and the ſalt remains: of courſe, after a few days, this ſea-water is thick with ſalt. From theſe pans it is conveyed into a boiling-houſe, by a ſimilar pump; where it is boiled in coppers, till all the water is boiled away, and the ſalt left at the bottom, in a hard cruſt or rock, perfectly dry. From theſe coppers it is dug out with ſpades; and then put up into caſks, to convey it to different parts.

Salt will naturally grow damp, in wet, moiſt places; but, if kept dry, may be preſerved as long as is required.

A buſhel of ſalt, that is, eight gallons, or thirty-two quarts, is ſold for about ſeven ſhillings, that is, three pence a quart; and, as there is no family but what uſes it, it is a very conſiderable trade.

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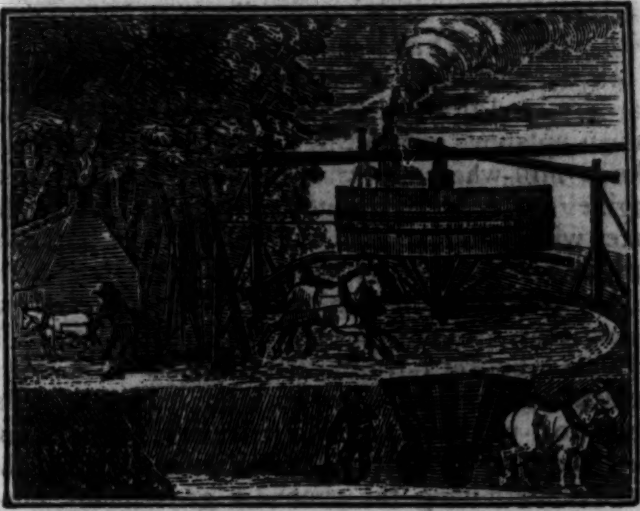
MINING.



IN the bowels of the earth are concealed invaluable treaſures, which it was the happineſs of man to diſcover, and convert to his uſe. A mine is a hollow place, dug out, that contains a vaſt quantityo f minerals or metals, there lodged from the formation of the world, and there growing, for the uſe of man. The metals I mean, are gold, ſilver, iron, copper, tin, and lead. There are no gold or ſilver mines in this country: of courſe, our money is made of that gold and ſilver we purchaſe from abroad; but we have iron, copper, tin, and lead-mines in England.

There are alſo ſalt-mines and coal-mines. A deſcription of one will ſerve for the whole: for they reſemble one another. The one before us is a coal-mine. All the coals burnt in London are brought, by ſhips, from the coal-mines at Newcaſtle.

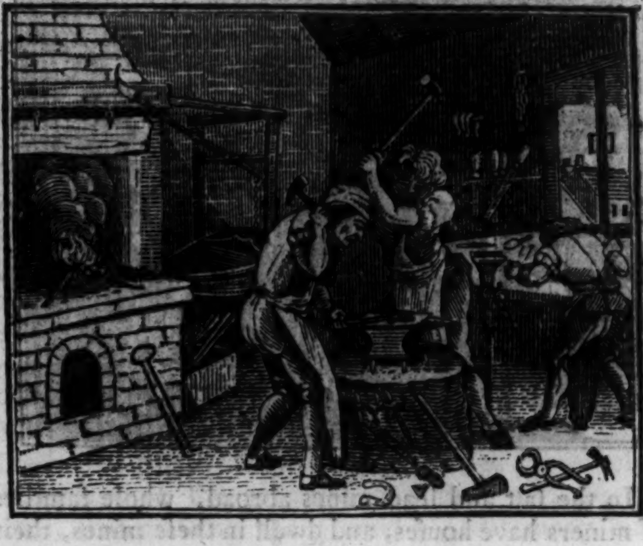
When a coal-mine is diſcovered, it is the property of the perſon on whoſe land it lies; and he employs perſons to dig the coals, and ſell them. Coals lie deep under ground ; as do lead, tin, &c. and to dig into this mine, they open a place like a well; and, having got down to the coals, dig away before them with a pick-axe, and ſhovel up what they dig with a ſpade ; then carry it, in tubs, baſkets, or wheel-barrows, and throw it into a large bucket, which is drawn up above ground, by a horſes turning a wheel, like a mill-wheel, as is here repreſented. Theſe engines are very ingeniouſly contrived ; for, as the water will collect in the earth where it is hollowed out, as we ſee in wells ; that the men may work dry below, it is generally pumped up : but there are engines, that, as they let down the coal-bucket, will draw up a bucket full of water ; and, as it lets down the water-bucket, will draw up a bucket full of coals. Theſe coal-pits are ſometimes a hundred yards below the ſurface of the ground ; and men will dig the coals, undermining the ground a great many hundred yards every way, and there ſhall be no opening to enter the mine, but by this well or ſhaft, as it is called ; of courſe they have no light below, and work by the light of lamps ; and leſt the earth above, as they dig it away below, ſhould fall in upon the workmen, they prop it up with poſts. The workmen are let down into theſe pits, by the bucket that brings up the coals.

In the ſalt and lead-mines abroad, whole families of miners have houſes, and dwell in theſe mines, their whole lives, without ever coming up, or ſeeing the day. They let horſes alſo down into them, for their uſe: but theſe mines will run a mile or two under ground, and are erected very high above the men's heads, the earth above being ſupported by poſts.

Where mines are ſo extenſive, there are generally more ſhafts than one, and more ways of entering; and a variety of engines are uſed to draw off the water, and bring the metal dug, above ground.

A ſtone-mine is called a quarry; but, as the ſtone generally lies near the ſurface of the earth, the land that covers it is always firſt removed; and, when the ſtone is ſo cleared, the workmen ſee their way before them, and have no occaſion for lamps: for a road, gradually deſcending, is made into the quarry, and a cart and horſes go down into it.

SMITHERY.



HAVING diſcovered iron, the next ſtep was to convert it to the ſeveral purpoſes of life; and to make ſuch inſtruments of it, as before were made wholly of wood or bone; wood not being ſufficiently laſting, and bone not being capable of carrying a ſharp, cutting edge.

It was ſoon found out, that iron, hard as it is, might be ſoftened, and even melted, by fire; and that, when red-hot, it might be hammered into any form, which, when cold again, it would preſerve. This introduced the trade or profeſſion of a ſmith; whoſe buſineſs it is, to convert iron into a variety of uſeful things: nails, to pin, or faſten, one piece of wood to another; hammers, to drive theſe nails; hinges and locks, for doors; grates, to hold fire; ſpades, to dig; ploughs, to cultivate land; points to arrows and ſpears; guns; ſhoes, for horſes, to ſave their feet; and a thouſand other things. Iron, being firſt made into bars, is afterwards formed into a variety of tools and inſtruments. The bar being made red-hot in a forge (where fire is burnt, and where the fire is made as fierce as poſſible, by blowing it with a pair of forge-bellows), is laid upon an iron anvil, and beat with ſledge-hammers and ſmall hammers, till it is ſhaped to the workman's mind. The roughneſs is taken off, and it is poliſhed and made bright, by files. For this purpoſe, it is ſcrewed into a vice, and is there held firm, ſo that the ſmith can file it with eaſe. To make holes in flat pieces of iron, ſuch as the ſhoe of a horſe, that it may be nailed on upon his hoof; when the ſhoe is red-hot, they take hold of it with a pair of tongs or pincers, and, holding a ſharp, iron pin, on the place they mean to make the hole, beat that pin through it with a hammer, and then dip the ſhoe in water, to cool it. If they wiſh to cut a piece of iron into two, they do it in the way they would make a hole in it; only, inſtead of a pin, they ſtrike a piece of ſharp iron through it.

There are ſeveral kinds of ſmiths. Thoſe who forge anchors, for ſhips, are called Anchor-ſmiths, thoſe who form and faſhion rough iron, as bars, nails, horſe-ſhoes, and ſuch things, are called Blackſmiths, and thoſe who poliſh, and make bright iron-work, as jacks, ſtove-grates, fire-irons, and ſuch things, are called Whiteſmiths. Thoſe who make cutting inſtruments, as ſwords, knives, ſciſſars, and the like, are called Cutlers: and indeed, as there are men who confine themſelves to particular branches of the iron-trade, and make only particular articles, theſe trades have names according to the things they make, as Lock-ſmiths, who make locks only; Snuffer-makers, who make ſnuffers only; Surgeon's inſtrument-makers, and the like.

Iron is capable alſo of being melted in furnaces; and perſons who are employed in this work, are called Founders. Theſe men caſt gun-barrels, cannon-balls, and many other things. The iron, when melted, is poured into a mould, made in the ſhape of the thing we want, and then left to get cold; and ſuch things, ſo made, are called Caſt-iron, and are much more liable to break, than hammered iron. Hammered iron will bend, but caſt iron will not.

Iron made red-hot, and ſo plunged into cold water, becomes very hard and brittle, and is called Steel. It is of this hard iron, that blades, and all cutting inſtruments are made, and it is this ſteel, that being ſtruck with a flint-ſtone, will ſtrike fire. It is thus, that a gun is fired; the gun-lock has a flint and ſteel; and by pulling a ſpring with the finger, the flint ſtrikes the ſteel, cauſes fire, which falls into a pan of gun-powder, that goes off, and diſcharges the gun.

Iron is ſo exceedingly uſeful to man, that, without it, they ſcarcely could do any thing. Formerly, ſpears and arrows were pointed with ſharp bones, now, they are pointed with iron. Without iron ſhoes, horſes could not do much work; without iron to the plough and harrow, farmers could not plough their land; without nails, the carpenter could not build houſes; without guns and cannons, nations could not go to war; without iron ſpades and pick-axes, the earth could not be opened, nor any of the valuable things that are there found, be got at.

It is more valuable than gold or diamonds; and an Indian, who has no occaſion for money or jewels, prefers a bit of iron to point his lance, to all the gold you can give him: for, in his country, gold will buy nothing. Therefore, as the cock in the fable, that, ſcratching in a dunghill found a diamond, ſaid, he would rather it had been a grain of corn, becauſe that he could have eaten; ſo the poor Indian, finding more uſe in a piece of iron than a bit of gold, prefers the iron, though to us it wou'd not be of one hundredth part the value. It is by the uſe of an iron ſpade and a pick-axe, that miners dig for ſilver and gold; and it is alſo by the uſe of a plough, ſhod with iron, that the fields are ploughed, and produce the corn and grain, that feed mankind. Iron, then, is a greater bleſſing to man, than ſilver or gold; and a blackſmith a more uſeful member of ſociety, than either a ſilverſmith, or a goldſmith.

THE BRICK-MAKER.

THE comfort of ſhelter in cold and ſtormy weather, induced men, in the firſt ages of the world, to fly to dens and caves; and ſuch are the places of reſidence in ſome ſavage nations at the preſent day. But, in civilized countries, as men ſtudied their wants and neceſſaries in other reſpects, ſo did they in their houſes. The firſt contrivance to build, was with ſtakes, fixed up in the ground, and covered with graſs and weeds. Of theſe, are the huts and hovels of the Indians: but thoſe who wiſhed to have warmer and more durable houſes, contrived to build them with Brick, which is burnt clay. The brickmaker, then, is the firſt perſon employed in building; and his method of making bricks is as follows.

Having dug the clay out of the earth, and ſoftened and tempered it with water, ſo as to mould it into any form he pleaſes; this clay is ſqueezed into a wooden mould, the ſize and form of a brick; and then taken out; and the bricks ſo formed, are piled up in an open place; and ſurrounded with ſtraw, ſo as to dry gradually in the warm air, without being too much expoſed to the ſun, which would crack them. When ſufficiently dried, they are again removed, and piled in a larger heap, with fire placed under it, ſo as to bake, and harden them. This large pile is called a Brick-kiln; and the bricks, ſo hardened and burnt, will continue firm for many hundred years. Bricks are all made of one particular ſize, ſo as to fit conveniently with each other, and form walls of any thickneſs. The uſe of theſe bricks, is the buſineſs of a Bricklayer; ſo called, from laying bricks, to form any building he requires.

The mortar, or cement, in which he lays the bricks, or which joins them together, is a mixture of lime, ſand, and water; and mortar, ſo made, and put between each brick, will make a wall, as hard and durable, as if it was built with ſtone.

Lime is nothing but chalk, burnt in a kiln; and chalk is dug from the earth. When chalk is converted into lime, by burning it, it has the power of becoming hot, when mixed with cold water; and, the ſand being added, the whole maſs or compoſition, when dry, becomes as hard as the brick itſelf.

THE BUILDER.

NOW the bricklayer ſpreads this mortar on the bricks, with an iron ſpreader, called a trowel; and builds his wall with regularity, by the uſe of a line and a rule, that directs his eye, and keeps his work in proportion. When the bricklayer has raiſed the walls of a houſe, the Carpenter is called to aſſiſt. It is his buſineſs, to cut the timbers, and join them, ſo as to form the roofs and the floors.

A tree, being cut down, is hewn out into form by an axe, cut into pieces by a ſaw; and one piece is joined to another, by boring holes in them, and driving large nails through them. When the roof is made, with timber, by the carpenter, the bricklayer is employed, to cover it with thin bricks, called Tiles. The carpenter, having made the windows, the Glazier is employed to glaze them, or put glaſs into them, by which the light paſſes into the houſe: and the Painter is next employed, to paint the wood-work, in order to preſerve and ornament it. Bricklayers, as the walls of a houſe, in building, are ſoon out of their reach, erect a ſcaffold on the outſide, to raiſe themſelves higher and higher, till they get to the top.

In countries where there are plenty of quarries; that is, places where ſtone grows in the earth; this ſtone is dug out, and, by cutting it into ſquare blocks, fit for building, houſes are built with ſtone inſtead of brick.

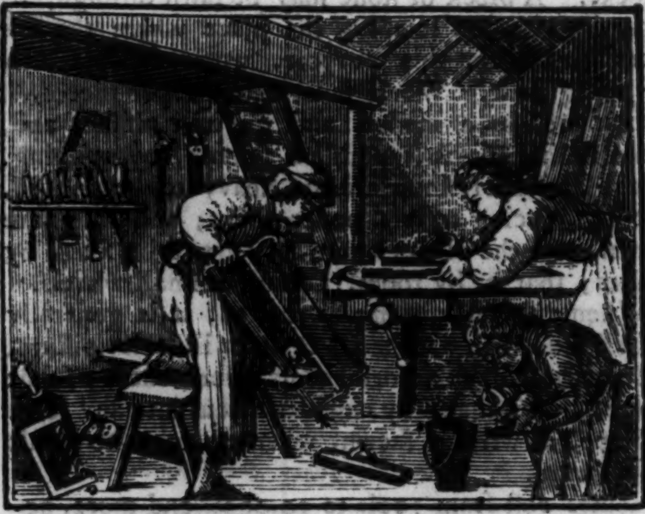
Stone is allowed to laſt much longer than brick; and houſes built with it, are much handſomer. Thus bridges, palaces, caſtles, and other great buildings, are erected with ſtone. The builder is called a Maſon; and the perſon who directs the building, is called an Architect. If the building is of brick, the director is called a Surveyor.

Stone is of ſo hard a nature, that the ſame tools which faſhion, or form, timber, will not cut, or faſhion, blocks. A block of ſtone may be ſawn through, by ſlow degrees, by keeping the place where the ſaw goes, wet: for this purpoſe, water is conſtantly dripping on it. When ſawn into proper pieces, it is faſhioned by a mallet, and an iron chiſel; and, when faſhioned, it is poliſhed ſmooth, by rubbing. Large blocks of ſtone are too heavy to be moved, but by placing rollers under them; and they are drawn up to the places where they are to be fixed, by pullies; that is, by ropes, running in ſmall wheels.

When a ſtone-building is erected, it is generally embelliſhed with architecture, that is, with pillars, and a variety of ſtone-ornaments: for ſtone is of that nature, that it may, by chiſſels, be cut into any form or ſhape, as will be ſhewn, when we come to ſpeak of ſculpture.

Houſes coſt from 100l. to 10,000l. and more, according to their ſize and magnificence; and houſes, when built, are let to tenants, at a price according to what they coſt building, and the ſituation of the ground on which they ſtand, from 10l. a year to 500l. The ſame houſe that lets, in a bad ſtreet, for 50l. a year, if it ſtood in a good one, would let for a 100l.

THE CABINET-MAKER.



MEN, having built houſes, found it neceſſary to furniſh them with ſuch conveniencies as they wanted; ſuch as drawers, to hold their clothes; chairs, to ſit on; tables, to eat on; and beds, to lie on. Thoſe perſons, whoſe profeſſion it is to make thoſe and ſundry other conveniencies, for family uſes, are called Cabinet-makers. The cabinet-maker is a better kind of carpenter, works neater, and is employed on more elegant furniture. The carpenter will make a common table of deal, but a cabinet-maker will make a handſome one of mahogany.

The chief employ of a carpenter is to work in wood, prepare all the timbers and wainſcoats of a houſe, make outſide pales and fences, and all ſuch kinds of out-door work: whereas, the cabinet-maker is employed in making the furniture within, as I have mentioned above. They both work with the ſame tools, ſuch as ſaws, axes, planes, chiſſels, files, gimblets, turn-ſcrews, hammers, glue-pot, rule, &c. but thoſe of the cabinet-maker are ſmaller tools of the ſame kind. He cuts his wood to the ſhape he wants with a ſaw, ſmooths it with a plane, joins one piece to another with glue (a ſticky ſubſtance, boiled out of the feet of oxen), and iron nails; firſt boring the hole with a gimblet. The invention of men has contrived a variety of things, both for uſe and ornament; and they are often embelliſhed by the Carver and Gilder.

The neceſſary and uſeful furniture of a houſe, will coſt from fifty pounds to five thouſand; according to the ſize of the houſe, the quantity of furniture it contains, its goodneſs, and its richneſs.

Tables, chairs, drawers, cheſts, bureaus, bedſteads, and all plain articles in wood, are made by the Cabinet-maker; carpets, by a Carpet-weaver; window-curtains, bed-furniture, &c. by an Upholſterer; looking-glaſſes, by a Glaſs-blower; and the frames, by a Carver and Gilder; ſtoves, grates, ſhovel, tongs, poker, and fender, and all iron goods, by a Smith. Of the furniture of the kitchen, the dreſſers, ſhelves, &c. are made by a Carpenter; the bowls, and ſundry little, uſeful, wooden articles, by a Turner; the iron-work, by a Blackſmith; the tin-ware, by a Tin-man; the copper and braſs-work, by a Brazier; the earthen-ware, by a Potter; and the bellows, by a Bellows-maker. Each of theſe profeſſions contribute their labour to the uſefulneſs of the kitchen; and men of all theſe profeſſions, not only thus find employ, but a livelihood for themſelves and their families.

The goodneſs of furniture depends on the fineneſs of the wood, and other materials of which it is made, the neatneſs of the workmanſhip, and the labour beſtowed on it. There is a faſhion in this, as well as in dreſs; and, as a taylor and milliner will invent new patterns of clothes, to attract the notice of their cuſtomers, and induce them to lay by their old clothes, and purchaſe new; ſo will a cabinet-maker and upholſterer, who generally make and ſell all kinds of furniture, invent new patterns, to put people out of conceit with what they have, and promote trade; and ſuch is the folly and extravagance of men, that they will often change their old furniture, though far from being worn out, for ſuch as is more modern, that they may not be out of the faſhion.

In cottages, and houſes of the poor, we ſee little furniture, but what is plain, neceſſary, and uſeful; but, in the manſions of the rich, a great deal is ſacrificed to taſte and magnificence. Sumptuous beds, inlaid tables, ſilk-damaſk chairs and curtains, ſophas, very expenſive carpets, large looking-glaſſes, worth five hundred pounds a glaſs; luſtres, and a profuſion of carved work, and gilding.

In ſhort, as we are too apt to eſteem men in proportion to the appearance they make; the wealthy ſtrive to outvie each other, not only in the decorations of their perſons, but alſo of their houſes, their gardens, and their lands.

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THE TURNER.

THE Turner is the next artiſt or mechanic that works in wood. This man makes round, wooden veſſels and ornaments, conſiſting of one piece of wood; ſuch as bowls, diſhes, cups, balls, ſcrews, &c.

The principal machine with which he works is a lathe. Having fixed a ſolid piece of wood between two ſpindles, as an axis, that run or turn in grooves, by means of a ſtring and treader, he is able, by his foot, to turn this piece of wood round quick, like a wheel, before him; then leaning a chiſſel on a bar, and applying the cutting edge of this chiſſel, ſteady to the piece of wood, as it turns, it hollows it out, or ſhapes it to his wiſhes, equally all the way round it; and thus forms a ball, hollows out a bowl, or turns a ſcrew.

He meaſures the ſize of the thing he makes, by a pair of compaſſes; and ſmooths off the rough edge with a file.

A wooden bowl, thus made, will hold liquids, as well as baſons or bowls, made with earth; are much lighter and cheaper, and not ſo liable to break. If an earthen or china bowl falls, it breaks; if a wooden bowl falls, it does not break. On theſe accounts, wooden ware is much uſed by the poor; and never exceed a few ſhillings in price.

If larger veſſels are wanted, they are made of ſeveral pieces of wood, ſo contrived, as to fit each other at the edge; and theſe pieces, being a little hollowed, when put together, form a tub, or barrel; which, being bound round, tight, with wooden or iron hoops, will contain water, beer, or wine. The workman who employs himſelf in this branch of buſineſs, is called a Cooper, and his workſhop a Cooperage.

THE COOPER.

COOPERAGES employ a great number of men; all kinds of liquids, ſuch as wine, brandy, rum, and other ſpirituous liquors, if in large quantities, being conveyed, from place to place, in barrels or caſks. Ships that go to ſea, carry water, for the men, in caſks. Butter, ſugar, tobacco, rice, and many other ſorts of dry goods, are brought from abroad in them. The tubs that hold butter, are called Butter-firkins; thoſe that hold water, Water-caſks; thoſe that hold wines, Pipes, Hogſheads, Barrels, &c.; thoſe that are uſed for Beer, are called Butts, &c. thoſe that convey rum, brandy, and the like, Puncheons. But theſe tubs bear different names, according to their ſizes; and their prices are, from three ſhillings or four ſhillings, to twenty or thirty ſhillings.

Coopers that have much employ, acquire great fortunes; for moſt articles, in which foreign trade conſiſts, are conveyed from country to country, in ſuch kind of wooden veſſels. They keep their contents dry, and ſafe, are not heavy in themſelves, not liable to break, or be damaged, and are not very expenſive; one of the largeſt iron-bound tubs, not coſting more than thirty ſhillings: whereas, an earthen jar that will hold as much, would coſt four or five times the ſum, would weigh more than the article it contains, take up more room in a ſhip, and be very likely to break. Should a hogſhead burſt, it may eaſily be repaired; not ſo with a jar.

Tools made uſe of by the cooper, are an adze, with which he hollows out the ſtaves; axes and ſaws, with which he ſhapes them to his mind. He then ſmooths and finiſhes them, and binds them together with hoops of wood or iron, which he beats firmly on with a hammer. Having firſt heated the wood, by burning chips in the inſide, it gives way to the hoops, and the edges of the ſtaves fit and join as cloſely together, as to hold water. If ſuch tubs or barrels are afterwards to ſtand out in the weather, that the ſun may not, by drying the wood, ſplit them, or open the ſeams, they are painted on the outſide, or rubbed over with tar.

Wooden hoops are made, for the cooper's uſe, by Hoop-benders; and iron-hoops, at the flatting-mills.

Tubs, however, for common uſe, and for ſmall quantities of liquor, are clumſy, and not ſo convenient; this induced men to invent veſſels of earth, which they are able to make in a variety of forms, for almoſt all uſes, and to ornament them very prettily.

THE POTTER.

THIS is the trade of the Potter, who forms his veſſels of earth, whether they be of China, or what is called Earthen-ware. Coarſe or fine, they are all made of a kind of clay, or ſtiff earth; which, after they are formed into the ſhape required, are dried, or baked hard, in a furnace or oven. The white

white ſtone-ware, is made of clay, and ground flint-ſtones; the brown-ware, is made of coarſer clay; and china, ſo called from being the invention of the Chineſe, and firſt made in China, is formed of a fine, white clay.

It will be needleſs to be very particular on this head; it is ſufficient to ſay, that the clay is firſt tempered or ſoftened by water, and beating; it is then wheeled to the Potters, where it is faſhioned, in various forms, by a piece of this clay being placed on the top of a lathe, as a kind of table, which the Potter can turn round, like a wheel, very faſt, with his feet; and is thus able to hollow out, or form, the veſſel with his hands, wetting them, from time to time, that the clay may not ſtick to them.

When the veſſel is too thick, he pares it thinner with a flat piece of iron. If there are handles to be ſet on, it is done by the hand; and if to be emboſſed, the clay is preſſed into hollow moulds, made agreeable to the figures to be impreſſed on it.

The veſſel, ſo formed, is baked; then glazed, or varniſhed; painted, and then baked again.

Thus it is the profeſſion of a Potter, to make plates, diſhes, bowls, tea-pots, jars, and ſundry other things, we ſee in common uſe. Common earthen-ware is cheap, but china is expenſive, and riſes in price, according as it is painted and ornamented. Earthen plates may be bought for two-pence. Some china plates will ſell for a guinea each.

THE GLASS-BLOWER.

GLASS is one of the pretttieſt inventions of man. It is a clear, tranſparent ware, and, though apt to break, is made and ſold at ſo ſmall a price, that its being liable to break, is of little conſequence, eſpecially as the broken glaſs can be converted again into other forms.

Glaſs is made from flint-ſtones, which, with the addition of ſand, pebbles, and other ingredients, pounded, or ground fine together, will melt in a ſtrong fire, or furnace. The Glaſs-blower dips the end of an iron tube, or pipe, into the melted glaſs, which thus gathers round the end of it; then takes it from the furnace, and, blowing hard at the other end, the maſs of hot glaſs ſwells, and becomes a hollow globe, as a bladder does, when we blow into it. By continual blowing, he will ſwell this globe to ſuch a ſize, that the glaſs ſhall be as thick or as thin, as he wiſhes it; and he poliſhes it ſmooth, by rolling it on a ſtone. In this hot ſtate, he lays it on a table, draws the globe out into the form of a roller, then opens it, by cutting it through the middle with ſhears. This done, being too thin, and not ſufficiently cold to ſupport itſelf, the ſides of the roller will fall open, like a ſheet of paper, flat on the table; and thus it becomes flat, and fit to cut out into panes, to glaze windows. When cold, it is put again into a warm oven, or furnace, to anneal, that is, to harden.

Looking-glaſſes are made in the ſame manner, only that is made thicker, or of a greater ſubſtance. It is then ground and poliſhed, and one ſide of it covered with quickſilver, and then framed.

Drinking-glaſſes are formed at the end of the blower, with iron plyers or pincers, by which the workman can handle and manage the ſoft glaſs, as with his fingers, and mould or faſhion it to any form he pleaſes.

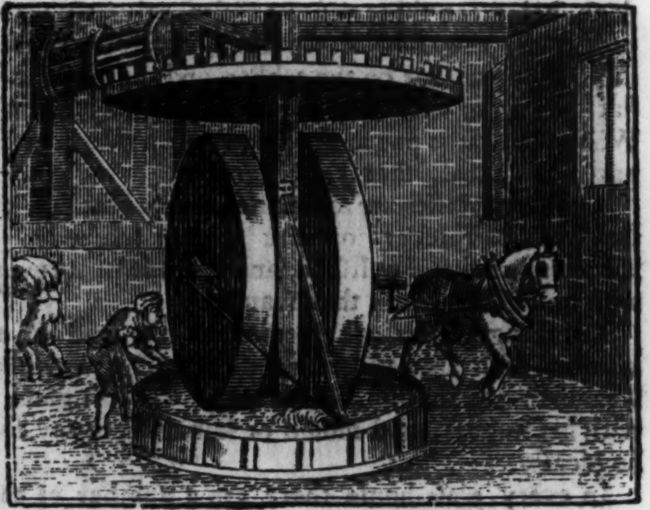
In every glaſs-houſe there are a number of theſe furnaces; and the place is rendered ſo hot by the fires in ſummer-time, that the men work without their ſhirts, clothed only in their breeches and ſhoes.

Looking-glaſſes riſe in value, according to their ſize and clearneſs; for the glaſs itſelf is of no great value. The many that are broke and injured in making, and the difficulty of making them clear, and free from blemiſhes, is ſo great, that when one of large dimenſions, and perfect, is completed, it ſhall be very valuable. A looking-glaſs, ſeven feet long, and four feet wide, is worth 200 guineas.

There is a method of ornamenting glaſs, by cutting, or engraving, figures in it. This is done by grinding, turning it on a lathe, againſt the grinders, as we have ſeen turners, turn their wood againſt the cutting-tool.

By thus cutting of ſolid glaſs, they can ornament it, and make it very beautiful; as we ſee in cut-glaſs chandeliers, which will ſell from five guineas, to 500 guineas each.

MILLS.



TO reduce the neceſſaries of life as low in value as poſſible, that they might be within the reach of the poor, as well as the rich, it was requiſite to ſave time and labour in preparing them. To make corn or wheat into bread, it is firſt to be made into flour; and this is done, by grinding the grain into powder, and ſifting it clean from the huſks. This is the profeſſion of a Miller, who grinds flour for the Baker. Till the invention of mills, wheat was pounded and bruiſed into flour, by beating; and it required a length of time, and a great deal of labour, to effect this.

But, the ingenuity of man, by application and ſtudy, invented a Mill, or a method of grinding corn, with leſs labour; and, inſtead of ſetting this mill to work, by the labour of men, they contrived it, to work it by horſes, by water, and by wind. The firſt, is called a Horſe-mill; the ſecond, a Water-mill; and the third, a Wind-mill.

Grain is ground in mills, by heavy ſtone-wheels, called Mill-ſtones, that roll round on a place, on which the grain is laid; and, being bruiſed by the weight of theſe ſtones, it runs through a hole, into a trough, or box, beneath. Where there is no convenience of erecting a wind-mill, or a water-mill, they turn theſe mill-ſtones by a horſe; which, being faſtened in a pair of ſhafts, walks round in a ring, and thus turns the wheels, as he goes. Conſtantly going one uniform round, in a ſmall circle, makes the head giddy. To prevent this, as the giddineſs ariſes from the effect this circular motion has upon the ſight, they blind-fold the horſe, and he thus does his daily work in the dark: but, being fixed in a pair of ſhafts, he cannot go out of his way, and, of courſe, will work as well blind-folded, as if he could ſee.

But, when there is convenience to erect either a wind-mill or a water-mill, even the labour of this horſe is ſaved.

Water-mills are built over ſtreams; and the water behind the mill being pent, or dammed up, to a certain height, is made, in running over this dam, to fall down upon boards, placed on the edge of a large wheel, and turn it; and this water-wheel, on the outſide of a mill, by a communication it has with the mill-ſtones within, turns theſe ſtones, and grinds the corn, in the ſame manner as it does, when turned by a horſe. The horſe mill before ſhown, repreſents the inſide of ſuch a ſnuff-mill; but, in a corn-mill, the two mill-ſtones, which here ſtand upright, are placed flat-ways, one over another, very near each other, but not to touch. The lower ſtone is fixed, and the upper one turns round on a ſpindle, and thus grinds the corn that falls in between the two, from a hopper, or box, above.

The larger the water-wheel, the leſs is the ſtream required to turn it: but, where the wheel is a large one, the fall of water behind that wheel muſt be a deep one. Water-mills have great power, and will do much more laborious work, than either horſe-mills or wind-mills. Where, therefore, there is a good ſtream of water, mills are conſtructed for a variety of purpoſes; not only to turn wheels, to grind, but to raiſe enormous beaters, and hammers, to beat; as is ſeen in the Paper-mill, in the next cut but one.

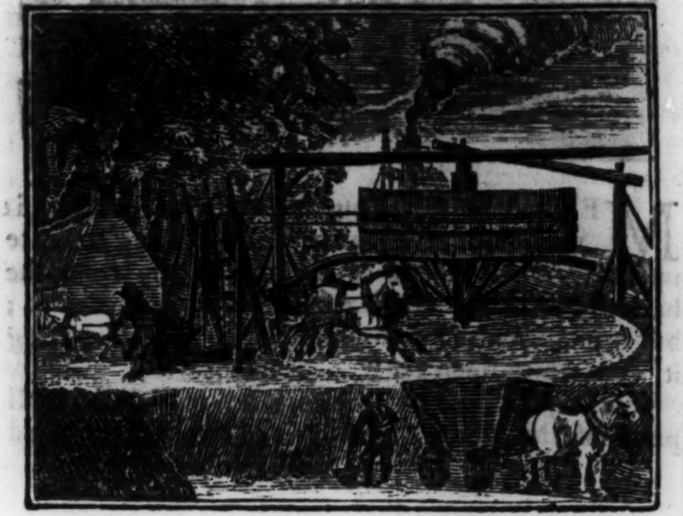
Water-mills are uſed to raiſe hammers of ſeveral ton weight, under which red-hot iron is placed, and beat out into bars; Fulling-mills, to raiſe beaters, to ſcour and clean woollen-cloth, after it is made, by continually beating it, in a running ſtream of water; and paper-mills, to raiſe beaters, to pound linen rags into pulp, to form paper.

The rent of a corn-mill, to grind corn; a ſnuff-mill, to grind ſnuff; an iron-mill, to beat out bars, or plates of iron; a fulling-mill, to cleanſe and ſcour cloths; an oil-mill, to extract oil from ſeeds; or a paper-mill, to make paper, is a valuable thing upon a gentleman's eſtate. Whilſt a farm, conſiſting of thirty large fields, ſhall not bring in more rent than 50l. a year, ſuch a mill, that takes up little more room than a houſe, ſhall be worth three times the ſum.

Wind-mills are worked with very little wind, by means of ſails, or cloths, ſpread upon the vanes, or wings, of the mill, on the outſide. Theſe vanes are capable of being turned to the wind, which, blowing on the ſails, turns, the vane; and that, communicating with the wheels and mill-ſtones within, works the mill, in the ſame manner as a water-mill.

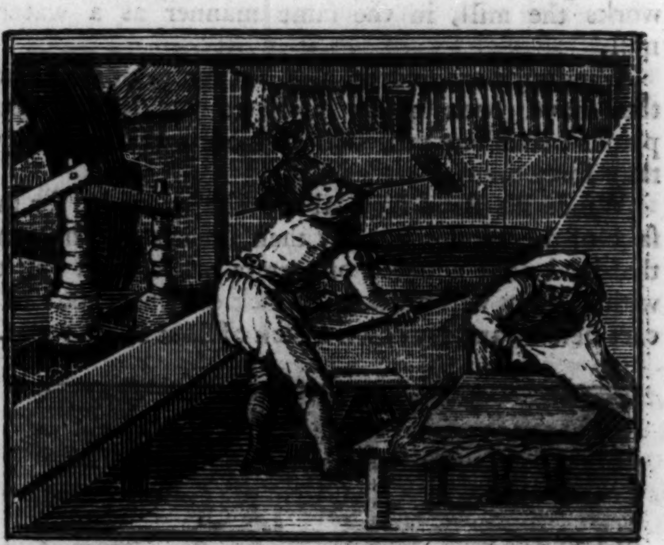
Windmills are ſeldom uſed but for grinding; but they have been made lately to ſaw timber into planks; and one mill will do more work in a day, than forty men.

Windmills ſtand high above the ground, for the ſake of the wind; but, by their internal mechaniſm, that is, by the addition of certain wheels and pullies within, they will draw up a ſack of wheat out of a cart below, and let down a ſack of flour in its room.



Mills are alſo uſed to raiſe coals, water, and metals, out of mines and pits; to wind ſilk, &c. as may be ſeen above. In ſhort, the contrivance is ſo curious, as to do honour to the invention of man, whoſe head is fertile in expedients.

THE PAPER-MAKER.



MEN having found out a method of writing, it was neceſſary to contrive ſomething to write upon. Various modes of making paper, from the bark of trees, and other materials, were contrived; but none ſo complete as that now in uſe, of making it from white linen rags.

Great quantities of ſuch rags are collected in all parts of the world; and ſuch collectors are called

Rag-merchants. Ship-loads are imported here from Holland.

Theſe rags, being purchaſed by the Paper-maker, are ſorted by him for different uſes: fine rags, for fine writing-paper; and coarſer rags, for more ordinary paper. When ſorted, they are laid to ſoak in water, to rot, and then under a beater, worked by a mill-wheel and water, beaten to a fine pulp. After this, they undergo ſeveral waſhings; and, being thrown, at laſt, into a large vat, in a fluid ſtate, about the conſiſtency of thin pap; the paper-mould, which is a ſquare wire ſeive, is dipped into the vat, and, being taken out, the water runs from the ſeive through the wires, and leaves a thin ſurface of pulp upon them; which is then turned out upon a blanket, and the ſeive is dipped again for a freſh ſheet; ſo that each dipping produces a ſheet of paper: and every ſheet, being put between blankets, as ſoon as there is a heap of them ſo formed, the heap is drawn away, and put under a preſs, and ſqueezed very hard. After this, it is taken out, ſheet by ſheet, and hung up to dry. When dry, it is ſorted, the good from the bad, the broken from the unbroken; and being made up into certain quantities, it is preſſed again.

I do not pretend to enter into a minute deſcription of the ſeveral trades, I think it neceſſary to ſpeak of. All I aim at is, as I have frequently noticed, to give ſuch a general idea of each trade, as that children may form ſome notion of them. When their ideas unfold, and their underſtanding ripens, it will be time enough to acquire more information reſpecting them.

Paper-mills are erected always on a ſtream of water; not only for the convenience of water, but for working beaters, &c.

Paper is made of many qualities and ſizes; from coarſe brown, to the fineſt writing-paper; and ſuch paper as is made to write on, is always ſized, or ſtiffened ſo as to bear the ink without ſinking. It is occaſionally coloured with blue or yellow paint, to give it a fair complexion.

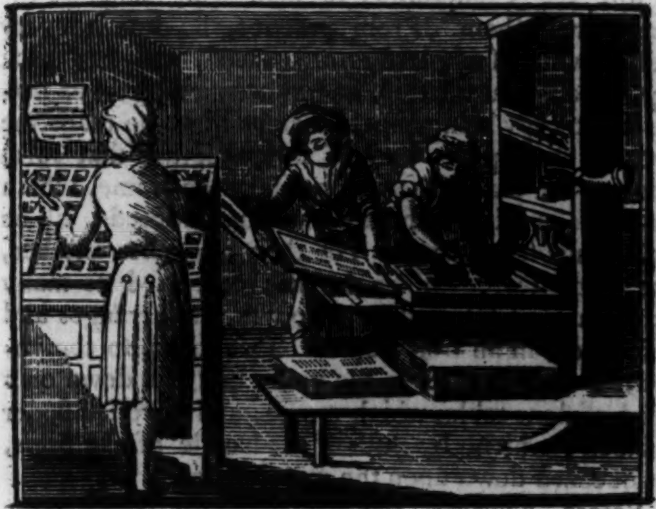
Paper is ſold by the ream; twenty quires in one ream, and twenty-four ſheets in one quire. From the Paper-maker it is ſold to the wholeſale Stationer; and from him, to the retail Stationer. It is worth from two-pence a quire to eighteen pence, according to its fineneſs, largeneſs, and thickneſs; and is known by various names; as Pot, Foolſcap, Crown, Poſt, Demy, Medium, Royal, &c. terms by which Stationers denote its ſize.

It is needleſs, I preſume, to repeat, that linen, which is the baſis of paper, is made from flax; and flax grows in the earth, like wheat, or other grain.

Very thick Paper is called Cartridge-paper; and many ſheets of paper paſted together, is called Paſteboard.

Cards are made of card-paper, printed and glazed. The price of a pack of cards is three ſhillings.

THE PRINTER.



HAVING made paper, men next invented the art of Printing, or a more expeditious way of multiplying copies, than by writing them. Before the invention of printing, all books were written with the pen, and the time this took up, made them very expenſive. The conſequence of which was, that, not having books to read, few men learned to read, and people were very ignorant and uninformed: but, ſince this uſeful invention took place, books have been written and printed on all ſubjects; they are ſold at a price, which moſt people can afford to pay; every one learns to read, to enjoy the advantage of books; and knowledge, thus generally communicated, has opened the minds of men, inſtructed them in the ſeveral ſciencies, made them more ſenſible, more rational, and more civilized.

Now, to give my reader ſome idea of the nature of printing, I muſt firſt tell him, that every letter is caſt in a mould, ſo as to be all uniformly of the ſame ſize. A number of each of theſe letters is put into a cell, or partition in a board, placed on a frame, before the Compoſitor, or man who compoſes the pages from them. From practice, he knows every cell in which ſuch letters are placed, and can pick up, quickly, any letter, he has occaſion for. His manuſcript copy being placed before him, he reads the words, then picks up the ſeveral letters that form the words, places them in a ſmall iron frame, which he holds in his left hand, and thus proceeds, till he has compoſed a page. He then compoſes another, the ſame way. When he has compoſed as many pages as will fill a ſheet of paper, he arranges and fixes them in an iron frame. This ſheet, ſo compoſed, is then carried to the preſs, and laid down on a kind of ſtone table, which moves, and is rolled under a block; which, by pulling the handle of the preſs, is ſqueezed down upon the metal pages.

Before, however, this is done, 500, or a 1000 ſheets of paper, more or leſs, are wetted; and, being at hand, one man blacks the metal pages with ink, mixed with ſtiff oil, by beating them with balls of wool, covered with leather, and inked; and another, at the ſame time, lays the ſheet on a frame, with hinges, which he turns down over the inked metal; then rolls it under the preſs, pulls down the block upon it, and thus takes off the impreſſion. This done, the table is rolled out again, the frame lifted up, and the printed ſheet taken off, and another plain ſheet put in its place; and the ſame as before is done with every ſheet. Long as this buſineſs may appear, the work, by practice, is ſo expeditious, that two men will print off 500 impreſſions of a ſheet, in leſs than four hours.

Theſe ſheets, when printed, are hung up on poles, or frames, to dry; and, when dry, are made ſmooth in a preſs, and put away.

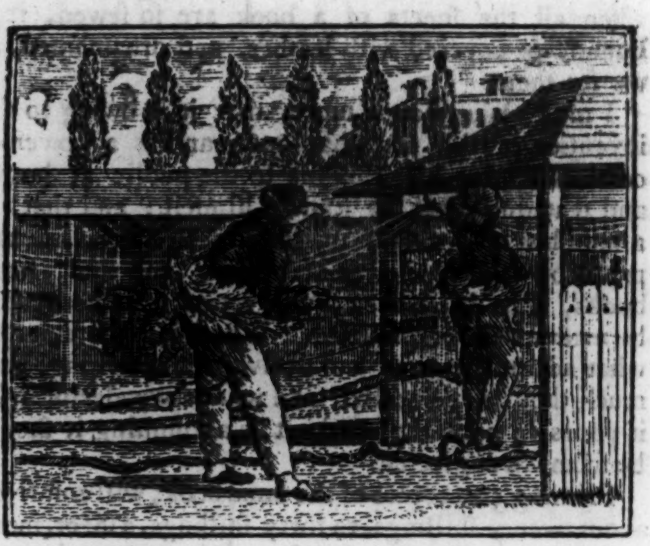
Now

Now a book contains a certain number of ſuch ſheets, which are properly gathered, and ranged, and afterwards go under the hands of the Binder; who firſt folds the ſheets, then ſews them together; and, when all the ſheets of a book are ſo ſewed, it is bound, or covered with leather, and ornamented, as we ſee them.

I muſt obſerve once more, that it is owing to the invention of this art, that one man has a power of communicating his thoughts to the public at large, and teaching what he knows himſelf; and that, if a man has leiſure and inclination to ſtudy, he may profit by the knowledge of others; and thus, from books, if he has a memory to retain what he reads, be maſter of every ſcience. When it is conſidered, what advantage men can derive from learning, how much they are reſpected, and what a wonderful light it pours in upon the mind, it is aſtoniſhing it ſhould be ſo much neglected.

Printing 500 copies of the ſame book, will coſt from about twenty ſhillings, to forty ſhillings, a ſheet, more or leſs, according to the ſize of the type or letter: the ſmaller it is, the more words a page holds, and the more expenſive is the printing. So that, if a book contains twenty ſheets, at twenty ſhillings a ſheet, the price of printing 500 copies will be twenty pounds; and the paper will coſt nearly the ſame money.

THE ROPE-MAKER.



ROPES, or Cords, are ſo uſeful for a variety of purpoſes, that the making of them is a trade of itſelf. They are made of hemp, twiſted, or ſpun, ſomething after the manner of ſpinning wool, which we have deſcribed.

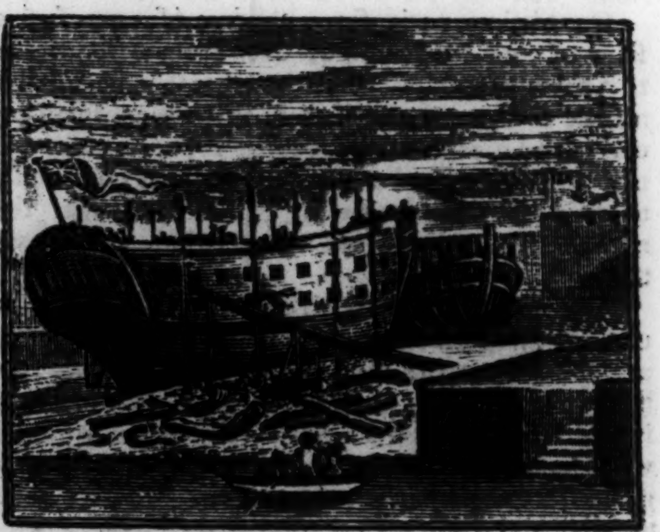
The places where ropes are made, are called Rope-walks; for, as ropes are required of very great lengths, it is neceſſary, in the making of them, that a man ſhould be able to go a great diſtance, backwards, from his wheel, that turns and twiſts the hemp, as he draws it from his waiſt; for he winds the hemp round him, for the convenience of pulling it out, and lengthening the rope, as he wants it. Hemp, thus twiſted, becomes ſtrong; and, the thicker the cord is, the ſtronger it is; that is, the greater power, or force, it requires to break it. A man, turning the wheel, is ſeen under the ſhed behind.

Cord being made for a number of purpoſes, all ſizes of cord are required, even from a packthread, to a cable of a ſhip. Packthread is that ſmall twine, a little ſtronger than a thread, that ties up ſmall parcels; and a cable, is that large rope, greaſed with tar, to preſerve it from the water, that faſtens ſhips to their moorings; that is, to the land, that they may not be carried away, by the wind, and the waters.

Nets are made with ſmall cords, and larger ones are uſed for tying up of packages; and ropes, of all ſizes and dimenſions, are uſed for ſhipping. A ſhip's cable, which is a rope of ſome hundred yards in length, is ſold by the pound weight, and ſhall be worth ſeveral hundred pounds in money. A cable of any great ſize, is made by twiſting ſeveral ſmaller ropes together, tarring, or greaſing over, with a kind of greaſe, called Tar.

* * *

SHIP-BUILDING.



AMONG all the inventions of man, the greateſt, and moſt ſtupendous, is that of a ſhip, that travels on the water. Man having found out the way of travelling from one place to another, upon land, his reſtleſs mind would not leave him quiet, till he could reach the utmoſt boundaries of the earth, and ſee what was to be met with beyond the watry ocean. Finding that timber would float, he firſt hollowed out a tree, put it into the water, and, with a ſtick, or pole, in each hand, paddled about the ſhore; and found that he could, in this boat, go many miles in one day: and, diſcovering that the wind conſiderably increaſed the motion of his veſſel, he invented a ſail; that is, he fixed a ſtick upright in his boat, ſpread a cloth upon this ſtick, on which the wind blowing, had more power, and drove him on a greater rate, than he could go before. This was the origin of a ſhip. When men perceived that they could direct a boat, driven on by the wind, and could go great diſtances in a very ſhort ſpace of time, they built larger boats, large enough to ſleep and live in; and whole families could travel in ſuch boats, upon the ſea, from one place to another.

But they were afraid to venture out of ſight of the land, leſt they ſhould loſe themſelves, and not know whither to return.

God, however, who ordains all things, and made the ſea for the uſe of man, ſoon taught him, how to traverſe the ocean with ſafety. He diſcovered to him, the uſe of the loadſtone, which is a ſtone that has this wonderful property, that, by touching the end of an iron needle with it, that needle, if placed on a point, like the hand of a watch, ſo as to run round eaſily, will always turn, ſo as that end touched by the loadſtone, ſhall conſtantly point to the North. This inſtrument is called, a Seaman's compaſs; and, taking ſuch a dial with them, if a boat ſails from the North, ever ſo far out to ſea, this needle always pointing to the North, though the perſon in the boat ſhould loſe ſight of the land, by ſailing the way to which the needle points, they will be ſure to go back to the place from whence they ſet out.

On the diſcovery of this inſtrument, men were not afraid to venture out of the ſight of land; and accordingly, began to build larger veſſels, to contain a great number of people, and ſufficient proviſion to ſupport them for ſeveral months, if the voyage, or journey, they intend to make by ſea, would take up ſo much time.

The art of conducting a ſhip, is called Navigation; and men have brought this art to ſuch perfection, that they will now go voyages, and traverſe the globe from one part to another, without ſeeing land for many months. By this compaſs they know which way to go; and, by the ſun and ſtars, they can always tell where they are.

Shipbuilding is now a very conſiderable profeſſion. Ships are made of all ſizes, from one that will carry ten men, and their proviſion, to one that will carry 1000 men, beſides a vaſt quantity of merchandiſe, which merchants tranſport for ſale, from one part of the world to another. For the world, as will be ſhown by and by, conſiſts of earth and ſea. The ſea divides the earth in many parts; and, was it not for the uſe of ſhips, one part of the world would have no communication with another, and we ſhould be deprived of many of the indulgencies that are brought us, by ſea, from diſtant countries.

A ſhip is a floating houſe, built ſo ſtrong and firm, as to reſiſt the power of the waves, and make head againſt ſtorms and tempeſts. It is made ſharp at bottom, to cut its way through the water; and has a number of poles, or maſts, fixed up in it, on which the ſails are ſpread, by which the wind drives it along.

The ſhip here repreſented, p. 184 is a ſhip of war; & the holes in the ſides are made for the convenience of putting out the mouths of cannon, in order to fire at any enemy's ſhips, that ſhall preſume to attack it. For war is carried on by ſhips at ſea, as well as by forces on land, as will be ſhewn.

This huge veſſel, larger than many houſes, is built with wood, and the joints are ſo well cloſed, that no water can enter, unleſs it ſhould run aground, or ſtrike againſt a rock under water, which accident may make a hole in its bottom, and ſink it. In this caſe, the perſons on board are generally drowned.

In order to build this ſhip, the ſharp bottom is firſt laid on a groove, by a river ſide, ſlanting to the water; and, as the ſides are boarded up, to prevent its falling down on either ſide, it is propped up by long poſts. Thus it is kept upright till it is completely finiſhed; and then the props being beaten away, and the ſhip ſlides gradually into the water. This a ſhip-builder calls launching a veſſel; and it is ſo curious a ſight, that great numbers of people go to ſee it.

SCULPTURE.

THE mind of man is ever at work, always contriving, always thoughtful. When he had made every thing that was uſeful and convenient, and improved theſe things to the utmoſt, he next exerciſed his fancy, and gratified his taſte, at leiſure times and hours, when he was not more neceſſarily employed.

Ambitious to copy after the Deity, whoſe imperfect image he is, he took up his creative power, and made an attempt to form his own likeneſs. This introduced Sculpture. With the aſſiſtance of chiſſels, hammers, and compaſſes, he carved out the figure of a man, from a block of wood; and from fine ideas of proportion, faſhioned him in the utmoſt elegance and perfection, giving this block every degree of animation, but life. This he cannot create. Life is the gift of God alone. He it is that gives it, and he it is that takes it away. If then there is any pleaſure in life, how grateful ought we to be, to him from whom we received it!

From the figure of a man, the Sculptor proceeds to that of other creatures; and, with his compaſſes, chiſſel, and mallet, is able to imitate the beaſts of the field, or other form his fancy may ſuggeſt. Wood is periſhable: but, finding ſtone of a more durable nature, the ſculptor, who wiſhes to tranſmit his works to future ages, carves out his images in ſtone. This is a more difficult labour, but is performed in the ſame way, by ſimilar tools. Great blocks of ſtone may be ſawn in two, and the chiſſel will give it any form the ſculptor pleaſes.

The Grecians, who lived many hundred years ago, and of whom there are little remains, but their works, were the fineſt ſculptors in the world. We have arrived to great perfection in this art, but have never equalled them. Was it not for the numberleſs ſtatues which have been found buried in the earth, in their cities, which have been, ages back, ſwallowed up by earthquakes, and which have been dug up in great perfection; and was it not for many of ſuch ſtatues that were erected in their time, and are ſtanding at preſent, we ſhould have but an obſcure idea of their ſkill; but their works proclaim their excellence, and teach us, that though men ſhall not outlive a hundred years themſelves, their works ſhall live many centuries after them; and the great grandſons and deſcendants of ſuch men, ſhall view and contemplate their anceſtors, in what they have left behind them.

The city of Herculaneum, in Italy, was overwhelmed, or buried, by an earthquake, ſeventeen hundred years ago. The ground has been opened in the courſe of this century; and many beautiful ſtone ſtatues, and pieces of antiquity, have been found, and are now preſerved in different parts of the world.

The ſculptors of the preſent time are chiefly employed in perpetuating the memory of the dead, erecting monuments in churches, at the deſire of their friends; and equeſtrian, or other ſtatues, in public places. Many ſuch monuments may be ſeen in Weſtminſter-Abbey; and ſuch ſtatues, in great cities. But, at times, they engage in other works: as ornamenting chimney-pieces, architecture, which is, embelliſhing the fronts of buildings; and theſe artiſts are called Statuaries. Monuments coſt, from 20l. to 2000l. according to their ſize, and the number of figures.

Carvers are thoſe who cut ornaments in wood, who carve picture frames, chimney-pieces, mouldings of rooms, and ſuch like. Theſe men work with iron tools, ſuch as chiſſels, hammers, &c. Picture-frames, and carved mouldings, are ſold by the foot, from 3s. to 10s. or more, according to the richneſs of the work; but ornaments to looking-glaſſes are ſold by the piece, and are often very expenſive. When carved, they are either painted or gilt, by Painters or Gilders. The gold they put on is ſolid gold, beat out between pieces of bladder, till it is ſo thin, that it will fly before the breath. The carved work is firſt covered with a ſize, which, before it is quite dry, is ſticky; the gold-leaf is then laid on, and, when it is quite dry, it is poliſhed with an ivory inſtrument.

PAINTING

FROM cutting out a figure in wood or ſtone, man proceeded to give the ſame reſemblance upon canvas, and this is called Painting. Painting, Sculpture, and Engraving, are called the Fine Arts. By means of various coloured paints, and the aſſiſtance of a bruſh, called a Pencil, the painter is enabled to copy or imitate, any thing he ſees, and repreſent, in a picture, a landſcape, men, and the likeneſs of any individual. By tints, by certain lights and ſhades, he can repreſent any thing his fancy ſhall ſuggeſt; and, if that fancy is a ſublime one; that is to ſay, if his ideas and thoughts are grand, he can, from his own mind, knowing how to form things, repreſent a ſcene of horror, or a picture of delight. He can, by his pencil, communicate thoſe ideas to the eye, which a good Orator, by words, can convey to the ear.

The Portrait-painter paints likeneſſes of certain perſons, and thus, by pictures, keeps up the memory of them in their deſcendants. The effect of pictures is ſeen in this work. Diſtant ſcenes and objects are brought home to the eye, and we are taught a variety of things, of which, otherwiſe, we ſhould have had an obſcure notion.

Pictures in oil, that is, when colours are mixed with oil, will ſtand for years, and bear cleaning; but pictures in water-colours will rub out, and require covering with a glaſs.

Painting, like ſculpture, was performed in greater perfection formerly, which is the reaſon that fine old pictures, the painters of which are dead, are in high value, and will ſell for a great deal of money.

Pictures might be multiplied by painting, but that would be very troubleſome and expenſive. There are two methods, however, of producing cheap copies of pictures; one, by engraving them on copper; the other, by cutting them on wood.

The engraver, having copied the picture, or drawn it upon a copper-plate, traces the lines, and hollows them out with a ſharp iron tool, called a Graver; and, when the plate is completed, the hollow lines are filled with ink, the plate is put into a preſs, a paper is placed over it, and, being tight ſqueezed, the impreſſion is taken on the paper. This mode of engraving is more expenſive than that of cutting upon wood; which is done by fine iron tools, like chiſſels. The picture being thus copied, the prominant parts of the wood being blacked with ink, the impreſſion is taken off by preſſure, in a printing-preſs, to which I muſt refer,

The art of painting is ſo general, and brought to ſuch perfection, that even the paſſions of men may be repreſented on paper; and all the ideas which theſe paſſions raiſe, will be communicated to the eye of the ſpectator. This is viſible in many of the prints in this work; as in the print of Men, void of Reaſon, and many others.

TRAVELLING

TRAVELLING ON THE SNOW, OR ICE.

IN ſome countries of the world, which are ſo cold, as to be continually covered with ice and ſnow, as in Lapland, and ſome other places, there is no poſſibility either of travelling in carriages, or in veſſels. The ſnow lies very thick upon the ground, all the year through; and, though it will, when frozen, bear the weight of a man, it will not bear the weight of a heavy carriage, on wheels: and, as to the rivers, they are always ſo frozen over, that no veſſels can paſs on them: and further, as no corn or graſs will grow in ſuch a cold place, no horſe will live there.

Theſe are great diſadvantages to the country, and the inhabitants there lead a wretched and uncomfortable life: but God, who has ordained this, has given them ſome advantages in lieu of thoſe he has deprived them of. The ingenuity of man has ſtill contrived means to travel, in this country, from one place to another.

The Laplanders have invented a pair of ſnow-ſhoes, or ſcates. Theſe are pieces of board, which they faſten to their feet, and on which, by help of a long pole, with a wheel at the end, they are able to puſh themſelves along, at a very great rate.

A Laplander, in theſe ſnow ſhoes, will overtake a wild boar, let him run ever ſo faſt; and travel faſter than a horſe, in this counnry, can gallop.

The rein-deer, in Lapland, is an animal much like our deer, but, uſed to a cold country, will live in the ſnow, ſeeks its food by ſmelling it, and ſcraping away the ſnow from the ground where it grows. Theſe animals the Laplanders have trained up to draw, like a horſe; and, inſtead of a carriage on wheels, they have contrived a ſledge, like a boat, which glides upon the ice, into which they get, and can thus travel very quick; for a rein-deer will draw ſuch a ſledge on the ice, with a man in it, twelve or fourteen miles an hour.

Laplanders will ſometimes remove their whole families in ſuch ſledges; and will hunt animals in their ſnow-ſhoes, in which they travel ſo ſwift, that nothing can eſcape them.

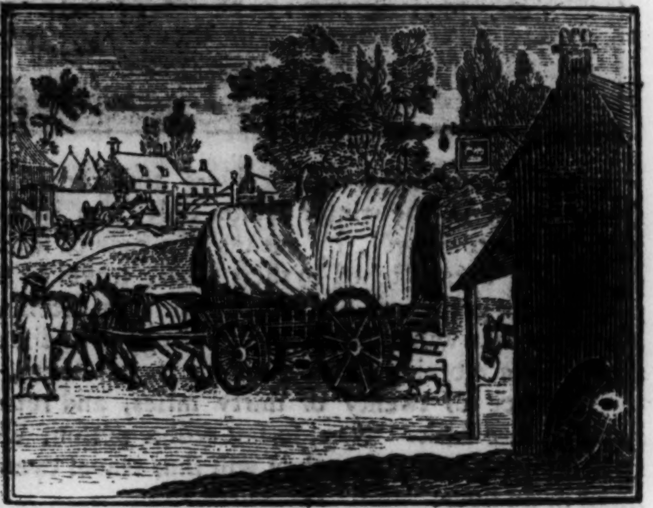
In other countries, when rivers and canals are frozen over, in the winter ſeaſon only, the inhabitants of one town will, by means of a pair of ſcates, or thin iron bars faſtened to their ſhoes, travel to another, with great eaſe and expedition. In Holland, a poor woman will take her baſket of eggs, and ſcate away, in a morning, to a market, to ſell them, at the diſtance of twenty or thirty miles, and return home before dark. Nay, ſo faſt will a perſon, uſed to ſcating, get on, that they will thus travel twenty miles in an hour.

Goods are likewiſe, in ſuch places, conveyed, from town to town, on ſledges, drawn by men, and ſometimes by horſes.

But, in warmer countries, places where rivers are not ſo often frozen, and where travelling on the ice is not ſo general, ſcating is made an exerciſe or diverſion, often attended with danger: for the ice will ſometimes give way, and break, and the ſcater ſhall be drowned.

It is a difficult thing to ſcate well; and a learner, like an infant trying to walk, will be ſome time before he can balance himſelf, and ſtand firm on the ice: but, when he has once accompliſhed it, he has little to fear from falls; and an expert ſcater will glide over the ice with great eaſe and elegance.

TRAVELLING BY LAND.



MAN, at his firſt creation, was, by neceſſity, confined to ſuch a ſpot of earth, as he could travel over, in one day, on foot. Having built him a houſe, and eſtabliſhed a home in a particular place, not being able to carry his conveniences with him, he could not well travel further, than to a diſtance from which he could return to his home at night. But, as mankind increaſed, as his family grew numerous, and the ſpot where he reſided was barely ſufficient to ſupport a few, certain parts of his family ſettled at a diſtance from him; and he could then be abſent for ſome days, as he could find that entertainment, and thoſe conveniencies, at the dwelling of his relations, which his own home afforded him. Thus could he travel to a little greater diſtance than before; but ſtill, no further than his feet would carry him.

As families, however, ſpread and covered whole tracts of country, if a communication was wanted between them, it was neceſſary to contrive carriages to go from one place to another; and the ſtrength, gentleneſs, and tractableneſs of the horſe, pointed him out as the animal beſt adapted to draw ſuch carriage. One improvement upon another, invented the carriages of the preſent day. They are fixed upon wheels, to roll on with eaſe, and without much labour to the horſe; and they are made with covers, or without, according to what they are uſed for. Carriages to convey men, are made to ſhelter them from the cold; but carriages to convey goods, do not always require coverings.

THE COACH-MAKER.

THIS kind of luxury or indulgence introduced the trade of a Coach-maker, which, till within theſe 200 years, was not known. Before this time, men of the firſt rank travelled on horſeback; and we are told, that queen Elizabeth, when ſhe went to the parliament-houſe, rode behind her chancellor, on a pillion. Coaches, and a variety of four-wheeled carriages, are now the faſhion of the times; and to ſo great an expence do men of fortune go in this particular, that they will change their carriages, before they are worn out, for more faſhionable ones, as they will their furniture or their clothes; and will pride themſelves as much in a gaudy coach, as in a ſtately manſion. A ſtage-coach is built, or made, for about ſeventy pounds; though a plain gentleman's coach cannot be purchaſed new for 140l. Yet, for additional ornaments and painting, more than a 1000l. have been given for ſuch a coach.

The great art in forming a carriage, is to make it light and durable; that is, to make it laſt for ſome years. The wheels ſoon wear out; but new wheels are often put to old carriages. The coach-maker employs various workmen, of different kinds; and, as the watch-maker, or watch-finiſher, who, having got all the parts of a watch, made by different workmen, puts them together, and thus completes the watch; ſo the coach-maker, is, as it were, the finiſher of the carriage, putting together the ſeveral parts made by different branches of buſineſs.

A carpenter firſt makes the ſkeleton of the body, with wood; which done, it is covered with leather, prepared by the tanner; and lined with cloth, the manufacture of the clothier. The windows are prepared by the Glazier; the iron-work, by the Smith; the braſs-work, by the Brazier; the wheels, by the Wheeler; the harneſs, by the Sadler; and, when the whole is completed, it is ornamented by the Painter and the Gilder.

Thus we ſee, that even the extravagance of ſome men, tends to the ſupport of others. Were men to content themſelves with merely the neceſſaries of life, there would be no occaſion for coach-makers, gilders, painters, and a hundred other profeſſions, which now find ſufficient employ.

There are various kinds of four-wheeled carriages, built for pleaſure; coaches, landaus, vis-a-vis's, landaulets, chariots, poſt-chaiſes, phaetons, ſome open, ſome covered, ſome carrying two perſons, and ſome four. Nay, there have been carriages contrived, to carry a bed, a table, and chairs, and other conveniencies; and are, in fact, like rooms drawn upon wheels. The empreſs of Ruſſia travels in ſuch a machine. It does not roll, indeed, upon wheels, but ſlides upon the ice; and, as ſhe is ſo drawn by twenty-four horſes, ſhe travels with the greateſt expedition.

When men found the pleaſure of ſocial intercourſe, the delight of viſiting their friends at a diſtance, and of enjoying the country round them, they next wiſhed to benefit by trading with each other, to convey to their friends ſuch things as they had, which the other were without; and to bring back from ſuch friends, neceſſaries enjoyed by them, which they themſelves wanted. This introduced trade and commerce; and, where the roads were paſſible, goods were carried to and fro', by land-carriage.

The carriages of this country, for goods, are waggons and carts, drawn generally by horſes, and ſometimes, by oxen. Horſes travel ſwifter than oxen; but oxen are maintained at leſs expence; of courſe, are ſometimes uſed by farmers, for, if any accident, ſuch as breaking a leg, or the like, ſhould happen to an ox, he can be killed, and ſold to the butcher, as meat. Not ſo with a horſe; when dead, no part of him is of any value but his ſkin.

Carriages for pleaſure, and to convey paſſengers, are coaches and chaiſes. But, it is impoſſible to travel far in a day, or to travel at ones eaſe, unleſs the roads are good. This has introduced the making of good roads in every country; and public houſes of accommodation, called inns, all along ſuch roads, are erected; where a traveller, if he has money in his pocket, can ſleep, eat, and drink, have freſh horſes and carriages, and every comfort, the ſame as at his own houſe. Inn-keepers live by accommodating travellers; and of courſe, ſtudy their convenience.

High-roads are made, between place and place, all over the kingdom, called turnpike; and, to keep them in repair, gates are erected at certain diſtances; in paſſing through which, travellers pay a ſmall ſum towards the expences of the ſame.

The horſe is thus rendered one of the moſt uſeful animals in nature. He is governed by reins, made obedient to the voice of the driver, and will draw, in a waggon, thirty miles a day; and, in a coach or chaiſe, fifty miles. But, by changing of horſes at certain diſtances, a traveller may be carried one hundred miles a day with eaſe.

The great roads of this kingdom lead through all the principal towns; and, upon every turnpike-road are found, Blackſmiths, to ſhoe horſes; Wheelers, to repair carriages; and Surgeons, ready to attend, on any accident that might happen to the traveller.

Stage-coaches are eſtabliſhed on every road, from town to town, to convey paſſengers, in companies, at a ſmall price; and road-waggons, to carry goods and parcels. By which means, a communication is opened between all the towns in the kingdom; and the trade of one town is carried to the market of another; and carriages may be ſeen, paſſing on theſe roads, all day long.

TRAVELLING BY SEA.

HAVING found out a method of travelling on land, man wiſhed to extend his journeys, and to viſit diſtant parts of the world; but, when he had travelled to the land's end, and found himſelf hemmed in by the water, his next contrivance was, how to traverſe that water, and reach any place that might be beyond it. Finding that wood would float, he hollowed out a tree, put it into the water, and got into it; invented an oar and ſail, and thus found he could make his way, either with the wind, blowing upon ſuch ſail, or by the help of an oar or two, paddling in the water. This ſimple invention he called a boat: but, when he had proceeded thus far, his ambitious views urged him to go further. This led the way to navigation. He conſtructed a ſhip, ſomething like a houſe, in which he could live upon the ſea, for ſome time; and contrived various means of carrying that ſhip ſafely, to great diſtances, over the rougheſt ſeas.

In

In conſequence of the invention of the ſeaman's compaſs, which I have deſcribed, ſhips are built, that will carry a thouſand men, and as much proviſions as will ſupport them for ſix months: and, thus equipped, they will travel, and carry goods to the fartheſt parts of the world, at the rate, ſometimes, of nine miles in an hour. Methods have been contrived to ſtear, or guide, theſe ſhips; and men can now travel as ſafely by ſea, as by land; and, by looking at the ſun, and other means, they can always tell, though out of ſight of land, where they are, and how far they have travelled. A journey by ſea, is called a Sea-voyage.

For the convenience and ſafety of ſhips, that are to be loaded and unloaded, there are certain ſecure places, on the borders of the ſea, where the water is deep, and where theſe ſhips can come up cloſe to the land. Such places are called ſea-ports; and towns are built in ſuch places, for the convenience and accommodation of thoſe who are concerned in ſhipping. Theſe parts are diſcoverable in the night, by light-houſes, that are built on the ſhore; which is a kind of high tower, with fires burning on the top, which may be ſeen, by ſhips, a great diſtance at ſea, and ſhews the perſons in that ſhip, the way into the port.

Now, as merchandiſe, or goods, are conveyed over land in carts and waggons, ſo they are conveyed over ſea in ſhips; and a trade and communication is carried on, with people living in the moſt diſtant parts of the world. The produce of one country is thus carried to another, and the people who have not conveniences in their own country, are thus enabled to procure them from other countries.

Ships, though well built, will ſometimes, by accidents unavoidable, break to pieces, or take fire, whilſt at ſea, and ſink; in which caſe, thr people in thoſe ſhips are drowned and loſt. But, ſuch care is taken, and ſuch proviſion made againſt theſe accidents, that we ſeldom hear of them.

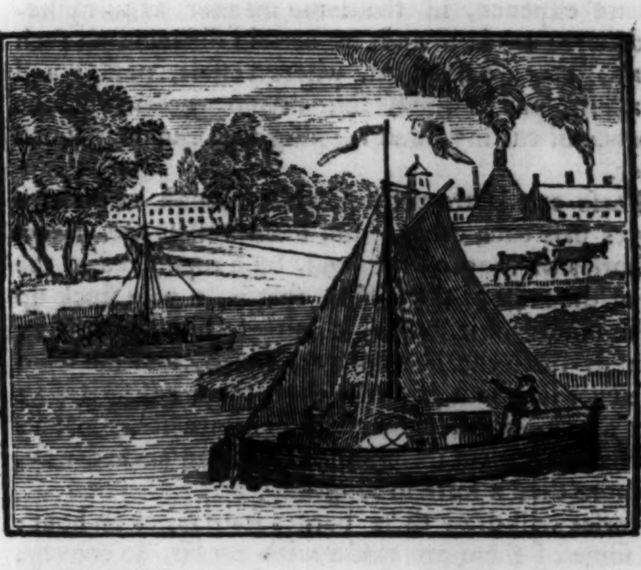
In ſuch ſhips, though not larger than a ſmall houſe, four or five hundred men will live comfortably for many months; for, as they take live cattle, proviſions, and liquors of all kinds with them, and every conveniency they have occaſion for, they know no want.

Seamen, having a compaſs to point out the way they are to go, hoiſt their ſails, which are large cloths ſpread out to receive and hold the wind, that drives the ſhip; and direct it, by means of a rudder, or a long-tail board, behind, and at the bottom of the ſhip, under water, which they can turn as they pleaſe; and, by acting againſt the water in its motion, can ſtear, or turn the ſhip, at pleaſure.

When ſhips are come to the end of their voyage, and have entered the port, the anchor, which is a large iron hook, with a cable, or ſtrong rope, fixed to it from the ſhip, is thrown into the ſea; and this, catching faſt hold of the ground at bottom, when the ſails are taken down, prevents the ſhip from being carried away by the wind and waves; and here it lies, till it is brought up to the quay, or land adjoining, unloaded or filled again, for its next voyage.

A ſhip, fitted out for ſea, will coſt, from 500l. to 100,000l. according to its ſize. Merchant-ſhips, in general, coſt from 500l. to 2000l. men of war, or fighting ſhips, from 20,000l. to 100,000l.

TRAVELLING BY CANALS.



HAVING found a method of conveying goods by land and by ſea, the next contrivance of man, was to make an improvement on land-carriage.

It was found, that a certain weight was eaſier moved, when floating upon the water, than when on wheels on the land; that one horſe could draw as much weight upon the water, as twenty horſes upon land; and, of courſe, if goods could be conveyed from one town to another by water, it would be far cheaper than to ſend them by land.

Turnpike roads, for the convenience of land-carriage, having been made from one place to another; it was next determined, where there was no river deep enough to let veſſels paſs, to cut canals, in all parts of the country, where the ground was ſufficiently level for the purpoſe.

Such canals have been cut, in many countries, at private expence, in the ſame manner as turnpike-roads were made; and, at certain diſtances on ſuch canals, gates are fixed up, where veſſels, paſſing and repaſſing, pay a ſmall ſum of money towards the expence of cutting, and keeping ſuch canals in good order.

Theſe canals are cut juſt wide enough to let two barges paſs each other; and theſe veſſels are drawn by horſes walking on the land, by a rope fixed to the top of the maſt of the veſſel; that is, a pole ſtuck up in the middle of it. For, coming to hills, and riſing ground, theſe canals wind very much, and the wind has never ſufficient power to drive them on, as it does ſhips at ſea, by their ſails. There are ſome canals that have been cut through hills, like an arched way, for more than a mile in length.

Horſes will draw theſe barges four miles an hour; and ſome of them are made with rooms, to convey, and accommodate, paſſengers. In Holland, where there are ſuch canals all through the country, the people travel no other way; and the barges there are ſo convenient, as to dine fifty paſſengers. Cooks and proviſions are kept on board for the purpoſe.

That theſe canals may not, however, intercept the roads through a country, bridges are erected over them, as over rivers, that carriages may paſs acroſs. As to the conveyance of timber, it is not neceſſary to put this into barges. Trees will float of themſelves; and the logs, or trees, being faſtened together by ropes, form what is called a raſt; the conductor of ſuch a raft will erect a ſhed on it, take up his lodging there at night, and eat his dinner there in the day; ſo that he will live on ſuch a raft for weeks together. His buſineſs is, to ſhove the raft from the bends of the canal, or river, in caſe it ſhould there lodge, and conduct it ſafely to the place it is going to.

Where there are no bridges over a river, horſes, men, and carriages, are carried over in ferry-boats, ſo conſtructed, as to take in a loaded waggon or two, horſes and all.

When barges arrive at their journey's end, they are drawn up to a landing-place, formed on purpoſe, on the bank of the canal, called a wharf; in the ſame manner as ſhips are brought to the quay, in a ſea-port.

The articles conveyed in barges, by rivers and canals, are corn, hay, lime, coals, iron, and other heavy goods, which would be very dear, at the place they were carried to, if conveyed, by land-carriage, in carts and waggons.

Barges will coſt from 50l. to 200l. according to their ſize.

PROGRESS

OF

MAN AND SOCIETY.

PART IV.

THE EARTH.

THERE are four elemental parts of the globe, that is, parts of which the earth is made, namely, Earth, Fire, Water, and Air. Of the earth we ſhall now ſpeak. From this, every thing ſprings; and to this, every thing returns. Whatever is in being, has its origin, as we have ſeen, in the earth. Hence it is called, the *Mother Earth*; and whatever exiſts, when it moulders into duſt, becomes earth again. Man, when he dies, rots in the grave, and of courſe returns to the earth, from whence he ſprung, God having formed our firſt parents of the duſt of the earth.

There are not only animals living on the ſurface of the earth, but there are many that bury themſelves within it, and live under ground, ſuch as Worms, Maggots, Ants, Moles, Rabbits, Foxes, and others; for the three great elements of the world, earth, air, and water, are fully peopled; earth, with men and animals; air, with birds and inſects; and water, with fiſh.

Now, earth is compoſed of a variety of matter, mould, clay, ſand, marble, ſtone, chalk, coals, ſilver, gold, tin, iron, copper, precious ſtones, ſaltpetre, brimſtone, and other things. No wonder then, as fire always exiſts, that this fiery matter ſhould ſometimes blaze out, and convulſe the world.

Whole towns have been thus over-turned, and people buried in their ruins. Sometimes the earth will open, and all things that ſtand or grow upon it, ſink down, and are ſwallowed up, whether trees, houſes, or cities. Whenever ſuch an accident happens, it is called an Earthquake.

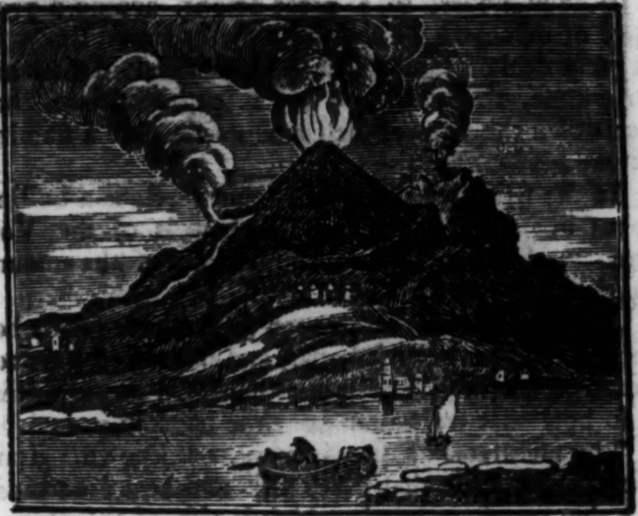
EARTHQUAKE.

The city of Lima, in Peru, and the city of Liſbon, in Portugal, were ſwallowed up, in very late years. Many of the buildings were entirely buried, and many, half buried. In ſome earthquakes, churches have ſunk, ſo as only to leave their ſteeples above ground; and men have experienced the ſame misfortune. Some have ſunk to their waiſts, and the earth cloſed in upon them; ſome to their chins, and have been dug out alive; and others, have been wholly covered, and loſt.

When the earth is ſo convulſed and torn, it is not very wonderful that, in courſe of time, it ſhould undergo changes; that new iſlands ſhould appear in the ocean, and old ones, ſink, and diſappear. This has ſometimes been the caſe, for iſlands are no other than the tops of hills or mountains, reaching above the ſurface of the water, whoſe foundations are at the bottom of the ſea; and, of courſe, if the mountain ſinks, its top falls below the water, and the iſland diſappears: and ſo, if a mountain, whoſe top is juſt below the water, ſhould ſwell, by any inward convulſion, it would riſe above the ſurface, and this would be a new iſland.

It is owing to earthquakes alſo, that many place which have been dry land, are now covered with the ſea; and many places where the ſea was, are now dry land.

FIRE.



FIRE is the ſecond great elemental part of the globe, of which the world is made; and, in particular countries, where ſuch a quantity of fiery matter is lodged in the bowels of the earth, if it was not for certain vents, the fiery part within would tear the earth beyond conception. But, it ſo happens, that it often burſts its way out of the tops of certain mountains, which are called Volcanoes, or Burning-mountains. Theſe are a kind of chimney, that are hollow to a very great depth, and ſerve to give vent to the fire beneath. Was it not for theſe Volcanoes, there would be continual earthquakes in ſuch places.

There are three remarkable Volcanoes in the world: Mount Veſuvius, in Naples; Mount Ætna, is Sicily; and Mount Hecta, in Iceland; beſides many others, not ſo well known. Their flames may be ſeen at night, at the diſtance of fifty miles; and the light they give to all the ſurrounding country is aſtoniſhing.

Sometimes theſe Volcanoes will throw out only ſmoke; at others, they will vomit out flames, cinders, and ſtones, to a great height, and do a great deal of miſchief. They will alſo, at times, throw up a great deal of liquid fire; a kind of melted pitch and brimſtone, that will burn for a length of time, and run down the ſides of ſuch mountains, like a flaming river.

In the neighbourhood of Mount Hecta is a boiling fountain; water heated in the bowels of the Volcano, and ſpouted up, at the bottom of the mountain, thirty feet high.

At Bath, in our own country, we have ſuch a hot ſpring, where the ſick bathe, and are often thus reſtored to health. The water there, in ſome places, is ſo hot, that we cannot bear the hand in it.

The uſefulneſs of fire is very well known. It is the fire of the ſun that gives light and heat; and it is fire that occaſions wind, which is alſo of the higheſt uſe to man. In ſhort, the uſes of fire are ſo very neceſſary to the exiſtence of every thing, that we can only pray to God to keep it within due bounds, and not ſuffer it to rage to the deſtruction of the world.

When God has been diſpoſed to puniſh the ſins of a nation, he has made earthquakes and fire the miniſters of his vengeance; and has thus laid waſte a whole country, as I ſhall have occaſion hereafter to mention more particularly, when I ſpeak of the Puniſhments of heaven.

Fire, like air, pervades, and exiſts in every thing. The light of the ſun may be collected into a point, by ſuffering it to ſhine through a glaſs; and that point will be fire, for it will burn what it touches. Strike a flint-ſtone againſt ſteel, and it will produce fire. Rub two dry ſticks againſt each other, and it will do the ſame. Phoſphorus, which is made of burnt flour, will catch fire of itſelf, when expoſed to the air; and, by pouring a certain cold, ſour liquor, into cold water, that water will inſtantly boil; and, if man himſelf is electrified, which is a philſophical preparation which cannot here be explained, fire will come out of him; for, if he touches ſpirits of wine with his fingers, he will inſtantly ſet it in a blaze.

So wonderful are the works of nature, that man may well ſtand amazed at what he ſees. They are ſo far beyond his comprehenſion, that he can only acknowledge his own littleneſs, and admire the greatneſs of the God above him!

* * *

A I R.

AIR is the third great element of which the world conſiſts, and ſo neceſſary to the exiſtence of men and animals, that they could not live without it. It is what they breathe, and, of courſe, is the very means of life. Put a mouſe or a bird under a large glaſs, draw out the air from within that glaſs, which can be done, and the mouſe or bird will inſtantly faint and die. Even fire will not burn without air.

Air is a fluctuating body, and undulates, or flows, like the waves of the ſea. Now it is the property of fire to expel, or drive away, air; ſo that, if a fire is made in any place, it heats that place, expels the air about it, and the adjoining air, ruſhing in to fill the place which the heated air had left, cauſes a draught of wind; and it is on this principle that wind is accounted for. In countries where the ſun is very powerful, much more ſo than with us, and is very hot, it expells the air; and the air from other parts of the world ruſhing it, where the heated air is expelled, cauſes that draught, or flowing of the air, which we call Wind. Make a fire in a room, and the air will ruſh from the windows, and the doors, and occaſion a draught of air, which may be felt by a perſon ſitting near the fire; and hence it is, that people ſo often catch cold, as between the windows, or the doors, and the fire, is, in fact, the coldeſt part of the room.

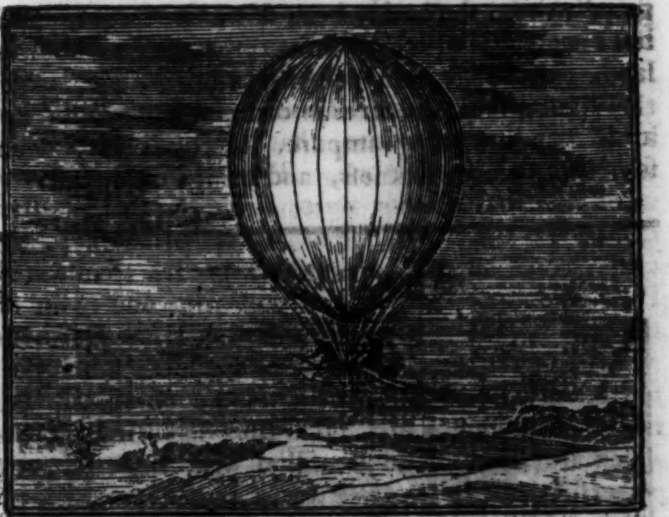
That the air is a floating body, may be known by looking at it through a magnifying-glaſs, by which inſtrument it may be ſeen; but, was it viſible to the naked eye, it would intercept the ſight of man; of courſe, Providence has ordained it otherwiſe: but, it is ſuch a body, and ſo powerful a one, that it will drive ſhips before it, by blowing forcibly on the ſails; tear up trees by the roots, and overſet houſes. When the air or wind is thus violent, it occaſions Storms and Tempeſts; the firſt is a high wind, on land, that deſtroys every thing before it; and the ſecond, a high wind at ſea, that overturns, and ſinks, ſhips. At ſuch times, the wind is dreadful.

At other times, it will occaſion whirlwinds, which are, wind blowing round in a circle, ſo powerfully, as to carry very great bodies up in the air. Theſe do not extend over very large Tracts of land; but yet, have been known, in hot countries, to tear up trees by their roots, carry them into the air; and take up ſhips near the coaſt, and hurl them upon the land. Such violent whirlwinds are called Tornadoes.

But, though winds, when boiſterous, are ſuch ſcourges to mankind, they are, when moderate, highly beneficial and uſeful. By them, Providence has enabled men to traverſe the vaſt ocean, and keep up a communication with iſlands, and the moſt diſtant parts of the world. They turn windmills, to grind corn; they alſo carry the clouds, which, in hot countries, where the heat of the ſun parches the land, refreſhes it with ſeaſonable rains.

To comprehend this, it muſt be obſerved, that it is a law, or rule of nature, that a light body ſhall always riſe in a heavier one. Thus, force a piece of wood, or cork, under water, quit it, and, as ſoon it is at liberty, it will riſe to the top or ſurface, becauſe wood and cork are lighter bodies than water. Pour oil into water, and it will riſe, and ſwim on the top, becauſe oil is lighter than water. So ſmoke will riſe in the air. In the ſame manner, a bladder, filled with air that is lighter than the common air, will riſe in the common air. It is thus that Air-balloons, which are large bladders, filled with light air, are powerful enough to draw up a great weight with them into the air; and boats have been hung to ſuch bladders, and men, in theſe boats, have been carried up two or three miles high, and have been blown, by the wind, fifty miles in an afternoon: but, as no method is yet found out to guide them in the air, they ſerve only to excite curioſity, and divert the people.

AIR - BALLOON.



It is on this ſame principle that water, in very ſmall quantities, is drawn up into the air, being lighter than the air, where it forms clouds.

It is air alſo that cauſes man to hear. Being put in motion by the voice, the air flows, like water, to the ear of thoſe within a certain diſtance, ſtrikes on the ears, and cauſes that ſenſation which we call Sound.

This element, like that of earth and water, is peopled with animals. I mean, all the winged tribes, of various ſizes, from the eagle to the gnat, and even to the inſect that is inviſible to the eye; for there are a number of inſects flying about in the air, ſo ſmall, that we cannot ſee them; ſo that we take down our throats, a number of creatures every time we breathe: and this ſhould teach us, how little cauſe a proud, wealthy man, has to draw back from a poor one, addreſſing him, leſt his breath ſhould offend him, when he is, every inſtant, breathing the foul air, and when, in every encloſed aſſembly of the people, at church, or at the play-houſe, this lordly creature is obliged to ſuck down, and breathe, that air that has already been down the throat, and in the lungs, of the pooreſt fellow creature he withdraws from. At beſt, man breathes a tainted air, which the vileſt animal breathes in common with him; and it is this breathing impure, infectious air, which ſometimes cauſes ſickneſs, and brings on diſeaſe.

WATER.

WATER is the fourth great element, or conſtituent part, of which the earth conſiſts, and without which, mankind could not exiſt. Neither men nor animals could live without drinking, nor would any tree, or plant, grow without moiſture.

Of water there are two kinds, ſalt and freſh. Sea-water is ſalt, and river-water, freſh. The ſea is that vaſt ocean, that divides countries, and on which ſhips ſail from one part of the world to another.

This great water has many uſeful properties. It contains and affords innumerable quantities of fiſhes, of various kinds, for the food and uſe of men: and, by its tides, it flows up the rivers regularly twice a day, into the land, thus conveying up veſſels; and, by its ebb, or return, forms a ſtream as regularly twice a day, to bring them back again. Towns are built by the ſides of rivers for the ſake of this convenience. Sea-water is loaded with ſalt, for various purpoſes in domeſtic life; but, the chief deſign of this ſalt, is to increaſe the weight of the water, and enable it to float heavy burdens, and prevent its ſtinking, which would infect the air, and render it unhealthy. But, as drinking ſalt water continually would be hurtful to man and beaſts, it has pleaſed our all-wiſe Creator, to ſupply the earth with freſh water rivers; many of which run through a whole country, in deep channels, into the ſea; and, by their ſtreams, convey the produce and merchandize of one country to another.

In the ocean we may ſee the wonderful wiſdom of God, who has confined the ſea to certain bounds which it cannot paſs; and though, in ſtormy weather, we ſhall behold it ruſhing mountains high, with the utmoſt violence on the ſhore, even where there are no banks, as if it would overwhelm the land, it ſhall no ſooner reach it, than it loſes, at once, all its progreſſive or advancing power, ſuddenly dies away, and falls back into its channel. By certain currents, or natural ſtreams, in this great water, ſhips are conveyed, from one place to another, along the coaſts, even when there is no wind to blow them.

The uſe of rivers to mankind is various. They not only ſupply countries, at a diſtance from the ſea, with fiſh, but the land, with ſprings; for theſe freſh waters penetrate the earth, and the water runs through it, in every part, as the blood does through the veins of the body of man; and we can ſcarce dig any where, but, at a certain depth, we ſhall find freſh water, where, by leaving the hole open, it will collect, and form a well; the water from which is pumped up, or drawn out, daily for our uſe. Brooks, or ſmaller rivers, flow into greater ones; and, in their paſſage, turn mills, conſtructed for various uſes, as I have ſhewn, and thus ſave the labour of men.

In large cities, ſuch a river is conducted, or turned through, an infinite number of channels under ground, formed by trunks, or hollow bodies of trees, through the middle of every ſtreet in ſuch city; and, from ſuch trunks, is led, by leaden pipes, into every houſe. Without this convenience, what would the inhabitants of large cities do, for water, in caſe of fire? A whole neighbourhood would be burnt down; which now, owing to this ſupply of water, and engines, to throw it over the houſes ſo burning, is preſently quenched, or put out. Country towns, which are not ſo bleſſed, ſuffer much more from fires, than cities. Wells, indeed, will ſupply families with water, for ſome purpoſes; but this water is hard, and not fit for waſhing of linen; whereas, rain-water is ſoft, and much more uſeful for many things. Such perſons as live not near a river, and have not the convenience of ſoft water, are obliged to contrive means to catch rain-water, falling on the roofs of their houſes; or make uſe of pond-water, which, though dirty, is, in its nature, as ſoft as river-water.

Rain then, another wonderful proviſion of Providence, is formed by water taken up, by the air, from the ſea, ſeperating it from the ſalt; from rivers, and from vapours, or the dew of the earth, as I have pointed out. In the air it forms clouds, which are carried about, by the wind, to certain places, and there ſprinkled over the land, as wanted. Was the water of the clouds to be let down all at once, it would fall in torrents, and perhaps drown a country: but God has wiſely ordained it otherwiſe; it is made to fall in ſoft, refreſhing ſhowers, and gives new life to every thing that grows: and this proviſion of nature is ſo regularly given, that all the world receives its benefit in due ſeaſon. Without it, or with too much of it, the fruits of the earth would be deſtroyed, and a famine would be the conſequence: a circumſtance which does not happen in a thouſand years, and never ſent among a people, but, as a puniſhment from heaven.

WATERSPOUT and WHIRLPOOL.

That clouds are formed as well from ſea-water as river-water, is evident in Water-ſpouts, which are commonly ſeen at ſea. This is a cloud, falling ſo low as to attract, or draw up, the water into it; which it does in ſuch quantities, that, was a ſhip to paſs through one, it would break it, and the weight of the water falling on the ſhip, would probably ſink it. Sailors, when they ſee one before them, generally fire a cannon at them, to diſperſe them, before the ſhip reaches it. Such a water-ſpout has the appearance of a funnel, reaching into the cloud; the point touching the ſea, which, under it, is generally agitated.

Whirlpools at ſea, are certain circular ſtreams, or currents, ſimilar to whirlwinds on land, that, if a ſhip, or boat, goes within it, it will whirl it round, and ſink it. They are ſuppoſed to be owing to a hole, or opening, at the bottom of the ſea, under them, where the water has a paſſage into ſome other place; of courſe, gives it an appearance at top, like water, in the upper part of a funnel, when it is running out at bottom.

In hot countries, where rain does not regularly fall, Providence kindly interpoſes, and moiſtens the land with dew, which is a watry vapour, drawn, by the heat of the ſun, from the bowels of the earth, too heavy to be carried up into the air, and thus, fall again on the ſurface of the land, and water it. This vapour, if it riſes three or four feet high, and is thicker than ordinary, is called a fog, and may be plainly ſeen in a morning; and is eaſily diſtinguiſhed from a miſt, which is a thin, moiſt cloud, that hangs ſo low, as to fall within two or three feet of the ground. In ſuch a miſt, by ſtooping down, we can ſee clearly under it; and, in a fog, we can often ſee over it.

Wells are generally lined with bricks, to prevent the earth falling into them; and, the water, from ſuch wells, is often drawn out, by a windlaſs, a rope, and bucket.

But, the ingenuity of man has invented a pump, which draws the water up by ſuction, in the ſame manner as a ſyringe, or ſquirt, will draw water from a baſon.

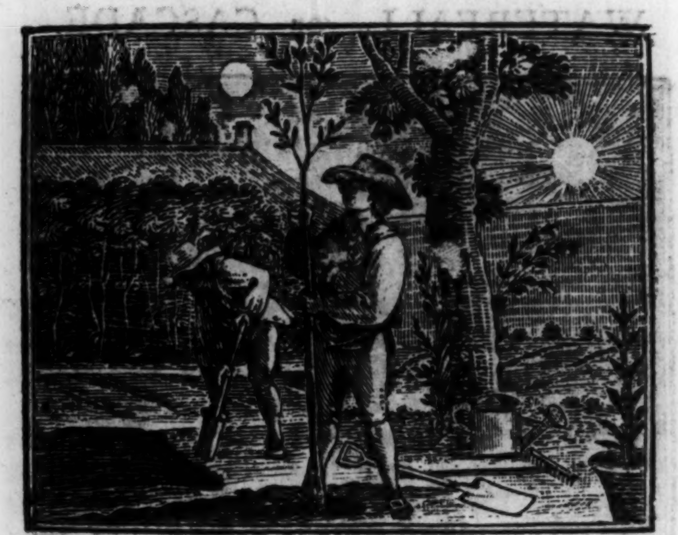
It is another principle, or property of water, to riſe to its level; ſo that, if we ſuppoſe a pond to be on the top of a hill, and a pipe, or communication, to paſs to the bottom of that hill, to croſs a valley below, and be continued to the top of a neighbouring hill, equal in height, the water in this pond will, preſſing through this pipe, riſe naturally to the top of the other hill. This is the method in which a Jet d'eau, or fountain, is made. The reſervoir, or water, that ſupplies it, is either naturally, or artificially, raiſed conſiderably above it; and a pipe, being laid from ſuch reſervoir, whoſe mouth, or end, opens in a plain below, the water will guſh out, with force, from ſuch mouth, and ſpout as high as the reſervoir is that ſupplies it. Such fountains are now introduced as ornaments in the gardens of the rich; and it is thus that great cities, ſupplied with water, will often have it in the upper ſtory of a houſe, without raiſing it by pumps.

River, or ſpring water, though perfectly bright and tranſparent, ſo as to be ſeen through, is full of living animals; and, was a glaſs of clear water to be looked at, through a magnifying glaſs, we ſhould ſee thouſands of fiſh ſwimming in it; ſo full is the whole creation of living creatures.

WATERFALL, or CASCADE.

IF water falls from a higher ground to a lower, as it often does from rocks, and in places where the land is hilly, ſuch fall of water is called a caſcade; and is often artificially formed in pleaſure-grounds, as an object of curioſity. By damming, or penning up the water above, it may be made to fall over a precipice, in a large ſheet, and not only pleaſe the eye, by its falling, but the ear, by the noiſe, or roar, its tumbling. In natural ſtreams, ſuch water-falls are called Cataracts, and are ſometimes very dreadful and ſtupendous; for, tumbling from precipices, a hundred feet high, where ſuch cataracts are, the river is impaſſible by boats, and the foam and roar they occaſion, alarm, and terrify, the traveller.

NATURAL LIGHT.



IT would have been of little uſe to have given men eyes, to ſee, if God had placed him in the dark. No: having made the world, he made the Sun to ſhine on it, to give it light and heat.

This ſun is an immenſe globe of fire, that never burns out; and it is placed at a certain diſtance in the heavens, to warm the earth, and give light and heat to man.

The Moon and ſtars alſo give ſome little light, but nothing equal to the light of the ſun.

Without the heat which the ſun affords, nothing would grow. Take a plant or flower, growing in a pot, put it in the dark, nay, place it only for ſome days in the ſhade, and it will fade and die. We ſee, in winter time, when the weather is cold, and the ſun does not give ſufficient heat, that nothing grows; but, as ſoon as ſpring begins, and the ſun-ſhine warms the earth, every plant and flower riſes from the ground, and ſhoots up with vigour.

In this country, our nights and days are pretty nearly of a length; but, in ſome places, in the ſummer-time, the ſun does not ſet for three or four months together; ſo that there is day-light for three months at a time, and no night. In the winter-time, the ſun does not riſe for three months; ſo that they have three months night; and the people there are obliged to go abroad, and work, by moon-light, ſtar-light, artificial light, that is, candle-light, or fire-light.

In theſe uncomfortable places, the whole country is covered with ice and ſnow; and, was it not for continual fires, and very warm clothes, the inhabitants would periſh with cold.

There are other natural lights, but ſo faint, as to be of little uſe to man. Theſe are bodies, not giving light by burning, but ſhining naturally of themſelves.

Glow-worms may be ſeen, at night, in the ſummer. This is a ſmall worm, with a bright, ſhining tail. There is alſo an inſect, called a Lanthorn-fly, that gives as much light as a lamp, and people can read by it; and we are told, that travellers, where this fly is to be met with, will faſten one to each foot, and walk abroad by the light they give. Lobſters will alſo ſhine in the dark; and ſo will rotten wood, called touchwood.

There are likewiſe lights in the air to be ſeen at night. Theſe are a kind of ſhining brightneſs in the heavens, that afford a little light.

But, what are all theſe glimmerings of light, to the brightneſs and radiency of the ſun? They may pleaſe the eye, and excite the curioſity, but the orb, which is the parent of day, is wonderful to behold. It riſes, every morning, in the Eaſt; and ſets, every evening, in the Weſt. But, that we may not loſe the benefit of his light ſuddenly, and be in inſtant darkneſs, the Creator has ſo contrived it, that, though the face of the ſun is hid from our ſight, yet it throws light upon the clouds and air above us; and theſe clouds and air caſt down on us a glimmering light, which we call Twylight. So, at break of day, was it not for the air, as ſoon as the ſun riſes, we ſhould have inſtant day, and the ſudden glare would hurt our ſight; but, the Almighty has provided againſt this. The ſun, before it riſes, ſhines upon the clouds and air over our heads; which light is reflected, or caſt down, from them, to us, forms, what we call, the Dawn, and introduces the day to us by degrees.

Thus the heat, or the light of the ſun, is the very ſoul of nature. It gives life to every thing. Without this heat, the waters would freeze, the air would be cold and froſty, and every plant and herb would die.

To God, then, we are obliged for the ſun, as for every other advantage in life. He rules the day, and governs the night, and orders the regularity of ſeaſons. Spring, Summer, Autumn, and Winter, which forms the whole life of a plant; as infancy, youth, manhood, and old age, does the life of man. In ſpring, and in infancy, plants, and men, receive their birth; in ſummer, and youth, they ſhoot forth, and bloom; in autumn, and manhood, they begin to

fade

fade ; and in winter, and old age, they die and are ſeen no more. Since then our days are in the hands of Him, who is Lord of life and death, how neceſſary is it that we ſhould be circumſpect in all our actions, make the beſt of thoſe days he is pleaſed to allow us, and be thankful for the benefits he has beſtowed upon us, that as he has given a time to be born, and a time to die, not murmur at his wiſe diſpenſations, but meet our fate with chearfulneſs, whenever the hour of diſſolution comes?

ARTIFICIAL LIGHT.

THIS is merely fire or flame, the flame of a lamp, or that of a candle, made by ſurrounding a few threads of cotton twiſted together, with oil, wax, or tallow ; which, by feeding this wick of cotton, will flame, or ſhine, while there is any greaſe, or wax to burn.

Oil is a liquid-fat preſſed or ſqueezed out from various things, ſuch as the body of a whale, the ſkins of animals, olives, rape-ſeed, and other things. Tallow is the fat of animals, and wax is what the bees collect from flowers, and form their neſts of. Oil is a greaſe that will not harden like wax or tallow, but continues liquid like water, and can be uſed only in lamps, that are ſeldom carried about; but, wax and tallow, though liquid when hot and melted, will grow hard and firm again, when cold; and as theſe will cling round the cotton, they will form candles, that may be carried about without ſpilling. It is the profeſſion or trade of a tallow-chandler, to make tallow-candles; and, that of a wax-chandler to make wax-candles.

People having found out the art of making candles, uſed them in their houſes to give light at night, when they were deprived of the light of the ſun; but how to carry them in the open air, where the wind would blow them out, they knew not. The ingenuity of man, however, ſoon found out an expedient for this. He contrived a box, to carry this lighted candle in, to ſhelter it from the wind; and, that the box might not obſcure the light, he made holes or a window in it, and covered thoſe windows with a ſubſtance through which the light would ſhine. There are three ſuch ſubſtances made uſe of, which, the diſcerning power of man, has diſcovered and rendered fit for the purpoſe; one is the horns of an animal ſoftened by boiling water, and ſpread out thin; the ſecond is glaſs, made by melting down flint ſtones; and the third, a ſubſtance called *talc*, which is dug out of the earth,

Theſe ſame ſubſtances ſerve mankind alſo for windows to let in the light into their houſes; and, at the ſame time, keep out the wind, and cold air. But thoſe nations, who have not found out the uſe of theſe things, make their windows of the fine membranes or inner ſkins of animals.

The box thus made, is called a Lanthorn, and that it may not be liable to catch fire with the candle; inſtead of wood, it is made with tin, which is iron covered with a white ſubſtance, dug out of the earth, and when ſo covered, it is not only handſome, but is preſerved from ruſting, which wet weather would otherwiſe occaſion.

Accommodated then with a candle and lanthorn, men can travel in the dark, at night, and ſee their way before them, and be able to work. A great number of candles in a room, will almoſt give as much light as day.

In certain places in the world, as I have obſerved, the ſun does not riſe for three months together. The people of courſe would be in the dark all this time, if it was not for the invention of artificial light.

But there are other ways of procuring fire, without which there can be no light, as I have ſhewn; but the general way with us, is ſtriking a flint-ſtone againſt a piece of hard iron ; this produces fire, ſparks of which falling upon burnt linen,called Tinder, will continue burning, till you can produce flame; by touching this tinder with a piece of thin dry wood, dipped in brimſtone: this preſently flames and will light a candle.

Providence we ſee never deprives mankind of a convenience without putting them in the way of ſupplying its place, and the darkneſs of the night, would deprive us of half our lives, were it not for this providential ſubſtitute. Tis true that in the night we take our reſt, but as the winter-nights are longer than the days,and longer then we need or wiſh to ſleep,without this artificial light we ſhould be uncomfortable and wretched.

LAWS.

FROM the entry of ſin into the world, men became vicious and naturally inclined to evil. Whilſt our firſt parents continued in a ſtate of innocence, they knew no wrong; but, having offended their maker, they became wicked and ſinful, and all their poſterity partook of their infirmity. Their children were born in ſin, and ſo are ours, and nothing but a true love for religion, and fear of puniſhment, can keep them honeſt.

Whilſt man lived in a ſavage ſtate, every thing he took poſſeſſion of, was his own; but when he came to fix his abode, turn huſbandman, and feed cattle, the produce of his labour became his property, and he found it neceſſary to guard that property by weapons, force and other means. As honeſty could not keep his neighbours from robbing him, he was obliged to keep them off by force; for if men could not enjoy the conveniencies and free uſe of what they worked for there is little encouragement to make ſtore of any thing. There are times and ſeaſons when men are more able and more diſpoſed to work, than at others, and then diligent and induſtrious people labour hard to make ſuch proviſions, as will enable them to relax from their toils and afford them comforts, at a time when ſickneſs and old age comes, and they find themſelves unable to work.

It is proper therefore that ſuch diligent perſons ſhould be protected in their property, and that the lazy and ſlothful ſhould not be ſuffered to take it from them.

This led men, when a number of families came to live together in ſociety, to make rules and laws, to protect each other from plunder, and to ſecure every man's property to himſelf.

Laws then were made of various kinds by the wiſer men in theſe ſocieties, in imitation of thoſe laws ordained by God for the good of mankind. In the early days of the world, before men had arrived at that exceſs of wickedneſs we now ſee them in at preſent, it was not neceſſary to aggrandize the laws, or give them any appearance of power or authority. It was ſufficient to ſhew that the law propoſed, was calculated to make men happy. They were iſſued in a hovel or a barn, and the people looked up to the plain and humble law-giver with reverence, as was the caſe with Solon.

ANTIENT LAW.

But in courſe of time, even laws began to loſe their force, and it was found neceſſary, to give them a greater degree of authority, that they ſhould be attended with ſolemnity, with pomp and magnificence. The long robe and large wig, gave a kind of ſeeming conſequence; and, like the lions before Solomon's throne, added terror and majeſty to the appearance. A regular government was eſtabliſhed, a chief or king was choſen to put the laws in force, and carry them into execution.

MODERN LAW.

This king being thus empowered by the people to govern and protect them, appointed judges to declare and enforce the laws and officers of juſtice, to enquire into the nature of offences, and puniſh thoſe that committed them. Hence aroſe the government of countries, as we ſhall ſee hereafter.

Such then is the difference between ancient and modern law. The former had its origin in the dictates of a good heart; whereas the latter originates in power and authority. The firſt was enforced by the good that attended it, the ſecond is kept up by terrors and puniſhments.

But, in ſpite of theſe laws, in oppoſition to all that is right and juſt, there are men ſo lazy and wickedly inclined, that rather then work themſelves, they will as the ſlothful drones plunder the active bees, rob thoſe that are induſtrious. Some will ſteal privately, and unobſerved, and others more daring will attack travellers on the roads, and break open houſes while families are aſleep, and take from them their property, threatening them with death if they reſiſt.

PLUNDERERS AND ROBBERS.

Thoſe of the firſt ſtamp are called petty thieves and pick-pockets. Theſe will pick a man's pocket when he is off his guard, or ſteal from him his property, whilſt he turns his back. Thoſe of the ſecond ſtamp are called highwaymen, ſtreet-robbers, and houſe-breakers.

In large cities and towns watchmen are appointed as a nightly guard, who walk about the ſtreets all night; but all this is inſufficient.

The laws of all countries puniſh ſuch offences with death; but there are deſperate wretches, who regardleſs of all law, will commit ſuch crimes at the riſk of their lives. If they are caught in the fact, there is little hopes of eſcape; they are taken into cuſtody, loaded with chains, and brought to trial.

Here they are charged with the crime before their fellow-citizens, twelve of whom are appointed to examine into the charge and try them. Theſe twelve men are called a Jury. Before theſe and a judge, the criminal is put on his defence. His accuſers are brought before him. They are all ſworn, and what they ſay is upon oath; and, when the accuſers are heard, and they have proved the crime, as far as they can, the criminal is heard in his turn, and all the friends he can find, either to prove his innocence, or give him a good character, are ſuffered to ſpeak in his favour. When this is all gone through, the judge repeats to the jury, what has been ſaid, both for, and againſt the priſoner, and it is then left to theſe twelve men to determine whether they think him guilty of the crime he is charged with or not. If he is deemed not guilty, he is inſtantly ſet at liberty; if guilty, he receives from the judge the ſentence of his puniſhment, and is ſent back to priſon, to be there kept, till it is inflicted.

The ſeveral puniſhments which the laws inflict to puniſh men for offences, in this country are fines, that is, obliging them to pay a ſum of money, impriſonment, whipping, pillory, tranſportation and death.

If one man aſſaults or beats another, or if he injures another in his property, the laws will fine him; that is, make him pay the injured party a ſum of money, equal to, if not exceeding, the loſs he has made him ſuſtain.

If a man accuſes another, upon oath, of a crime that he has not been guilty of, and it was proved upon trial, that the accuſation was mallicious, the accuſer is liable to be tried for the ſame; and, if found guilty, to be impriſoned for a certain time, and to ſtand in the pillory, or be tranſported for ſeven or fourteen years, as the judge ſhall think proper. In the print below, two raſcally fellows are accuſing a poor old man, of a crime of which he is innocent; and one behind is enjoying the villainy. But ſuch proceedings ſeldom anſwer the end deſigned. Innocence will appear in ſpite of the blackeſt accuſations, and we ſeldom hear of an honeſt man's falling a ſacrifice to artful malice. Judges are too clear-ſighted to be deceived, and, have too much penetration, to be led aſide from truth or juſtice.

If a man picks anothers pocket, or pilfers, that is, ſteals from a man his property, the laws will order him to be whipped on his bare back, in priſon, or to be publickly whipped in the ſtreet.

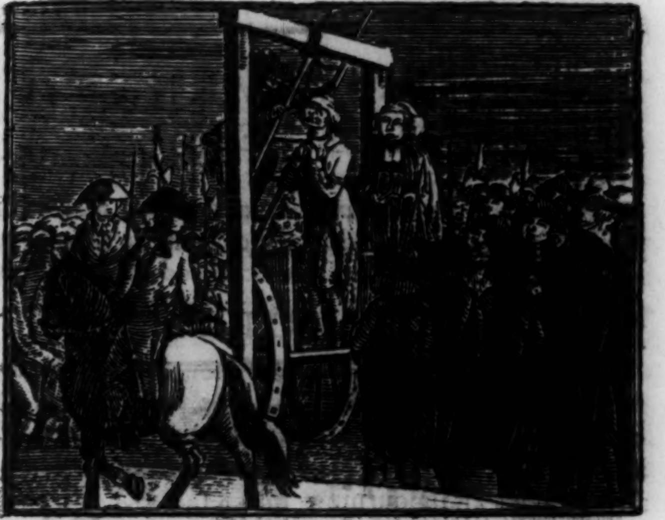
In a court of juſtice, a man is always examined upon oath; that is, he ſolemnly calls God to witneſs the truth of what he ſays; and, if in ſo doing, he tells a lie, the offence is called Perjury, and the puniſhment is the pillory. That is, the criminal is expoſed to public view, in an open part of the town; is placed upon a ſtage above the heads of the people, and his head and hands are put through holes in a board, where he is faſtened, and obliged to ſtand one hour, to be looked at by an inſulting populace. If his offence is attended with aggravation, that is, if by taking a falſe oath, he has done a great deal of harm; the people will inflict a puniſhment of their own; for they will pelt him the whole hour he there ſtands with mud; and men have been known to have been ſo put to death by the people.

PILLORY.

If a man is a notorious thief, but not guilty of an ence deſerving death, he is tranſported; that is baniſhed, or ſent out of his country, for a certain number of years or for his whole life; and, if he returns before the time of his baniſhment expires, he is hanged.

If a man is guilty of murder, highway-robbery, houſe-breaking at night, or ſome other great crime, the puniſhment is hanging, till he is dead.

EXECUTION.



If a nobleman ſhould commit treaſon, that is, ſtir up the people either againſt the King, or againſt the ſtate, he is beheaded; that is to ſay, he is brought out upon a ſcaffold, and his head is chopped off by an axe, upon a block.

One would naturally ſuppoſe, that a man who loves himſelf, would not commit a crime, that would draw on him ſuch corporal or bodily puniſhments; but the wickedneſs of their hearts, the perverſeneſs of their diſpoſitions, and their coveting the property of others lead them to ſuch acts, as when committed, they are heartily ſorry for, and wiſh they had not done. But this is repenting too late. If we dread the puniſhment, let us avoid the offence; for, independent of what we ſuffer from the laws, crimes leave ſuch a ſtain upon our character, that if we outlive the puniſhment, no reſpectable perſon will be ſeen in our company. We ſhall be, as it were, an outcaſt in ſociety, and can only aſſociate with the wicked and the abandoned. Good men will fly from us, as from a peſtilence, and the remainder of our lives muſt be wretched.

THE PUNISHMENTS OF HEAVEN.

HAVING ſeen the puniſhments which men inflict upon each other, for offences among themſelves, let us next advert to thoſe which God thinks proper occaſionally to inflict on mankind, for offences againſt Him.

When any family, or body of men, have arrived at ſuch a pitch of wickedneſs, as to be paſt the correction of the laws, God has taken up the cauſe himſelf, and puniſhed them with the rod of heaven. He has ſent ſickneſs and mourning into a family; has taken a father from his children, or children from their father; has cauſed families to decay, and made beggars of the rich.

When whole towns or countries have offended paſt correction, He has ſent ſlaughter and fire among them: He has deſtroyed them with famine or peſtilence, by tempeſt, inundations, and earthquakes. Let us conſider each of theſe calamities apart, and endeavour to learn wiſdom, from a proſpect of the misfortunes of others.

When he has determined to puniſh a nation by ſlaughter, he has cauſed inundations, rebellions and civil wars among the people; and, they have in ſuc contentions deſtroyed one another with the ſword.

There

There was a civil war in this kingdom, about one hundred and fifty years ago, which laſted eighteen or twenty years, when the people took arms againſt their King, and the whole nation was drowned in blood.

When God would revenge himſelf by conflagration, he has ſet whole cities on fire, and laid every building in aſhes.

For the iniquities of this nation he cauſed a fire to take place in London, about one hundred years ſince, and two thirds of the city in a few days were burnt to the ground.

Famine I ſhall ſpeak of by and by; and as to Peſtilence or epidemic ſickneſs, we have experienced this calamity among the reſt. In the laſt century, a plague or peſtilence ravaged the city of London, and the people died ſo faſt, as to lay about in the ſtreets for want of perſons to bury them. Thouſands were alive in the day, and dead at night.

The judgement of Heaven upon a ſinful people, ſhewn in the caſe of earthquakes, we have already ſpoken of, when treating of vulcanoes. Not many years ſince, the whole city of Liſbon in Portugal, was ſwallowed up by an earthquake. The earth opened, and the city, with its inhabitants ſunk, and was inſtantly buried.

DELUGE.

It remains then only to ſpeak of inundations or Deluge. In the early days of the world, when the ſins of man provoked the Almighty, it is well known that he cauſed it to rain ſo heavily for forty days together, as to drown the whole world. One family only, that of Noah, and the male and female of every animal was preſerved in a ſhip called an Ark, which Noah had built, previous to this calamity, by expreſs direction of his Creator, that the world might be repeopled, and reſtored by means of this family, and the animals preſerved with him. This ark floated upon the ſurface of the waters, and when they ſubſided, reſted upon dry-land. The diſtreſs that came upon mankind, by this dreadful deluge, is ſufficiently painted in this unhappy family before us, uſing their utmoſt efforts to ſave each other, and vain it was; for God intended it as a puniſhment on the ſins of a wicked world, and determined to root out the whole generation from the face of the earth. Since this there has been no ſuch univerſal flood, but partial inundations have taken place, and whole provinces have been waſhed away. Owing to rains and other cauſes, rivers have ſwoln, and overflowed their banks, and carried away bridges, houſes, cattle, and every living thing before it. Iſlands have ſunk into the ſea and diſappeared, and large tracts of land in Peru, and other places, with their inhabitants have been buried in the waves. The capital city of Ruſſia, was very lately overflown by the ſea, and ſome thouſands of people drowned; and in Holland, which is a flat country, bordering on the ſea, and where waters are kept out by ſtrong and extenſive banks, it has happened, owing to particular winds and unexpected tides that theſe banks have given way, and the ſea has ruſhed in, overflowed a great extent of country, diſtreſſed thouſands of people, and ſwept away every thing from off the land.

INUNDATION.

Ought we not then to ſhudder at theſe accounts and dread the vengeance of ſo powerful a hand? For though we may carry our iniquities ſo ſecretly as to deceive mankind, and eſcape the laſh of the law, and the puniſhments of men; yet God who reads the intentions of the heart, and looks into the breaſts of men, will overtake the offender, when he leaſt expects it, and make him ſmart for his iniquities.

Even ſingle and private perſons have felt the wrath of the Almighty, and have been puniſhed for their private crimes. Though they have eſcaped the puments of their country, they have ſunk under the ſtripes of their Creator. He has laid ſome on the bed of ſickneſs, taken from others their peace of mind, or reaſon, laſhed them with the ſtings of a guilty conſcience, deprived others of the uſe of their limbs, and others of their deareſt relations and friends, and others again of all their worldly property. He has tumbled kings from their thrones, dragged princes from their palaces, and the wealthy from their riches, has impriſoned the one, and obliged the other to take ſhelter under the charitable cover of an hoſpital. In ſhort, he has humbled the proud, and laid the exalted low.

If ſuch then is the omnipotence of God, how much does it concern every individual, to make his peace with Heaven, to keep his conſcience clear of offence, and act ſo that even his own heart, ſhall not condemn him!

TEMPEST.

THOSE who take long voyages, and travel far to ſea, are more immediately under the protection of Providence than other men. The crew of a ſhip, have no back-doors to eſcape through from fire, nor can they run as from the reach of a falling houſe. If a ſhip takes fire at ſea, or founders, by the planks parting, and letting in the water, there is little hopes of eſcaping. Each ſhip has a long-boat, that will carry twenty or thirty men, but what are twenty or thirty out of a whole ſhip's company, conſiſting often of ſome hundreds: and what chance has a boat of conveying twenty or thirty men, without proviſions, and at ſuch a diſtance from land, that they could not perhaps reach it for many weeks?

A ſhip of war has a great deal of gunpowder on board, and this powder muſt be fetched with a light: conſider than the danger of a ſpark falling among the powder, and blowing up the veſſel. This has frequently happened, and all the ſhip's company have been blown piece-meal at one inſtant into the air. Should a ſhip take fire, and many ſuch accidents happen, it is ſo full of pitch, tar, and other combuſtible matter; that though it has no gunpowder on board, it will often burn to the water's edge, and every ſoul on board will periſh. If it leaks or lets water, faſter than the men can pump or lade it out, it will ſink, and all the people with it. Sometimes a ſhip will ſtrike againſt a rock under water, and ſplit; and, ſometimes in ſhallow water, a ſhip will run upon the ſands, and there ſtick ſo faſt, that no human power can get it off again. If the tide does not riſe, that is to ſay, if the waters do not ſwell and overflow it, the great force of the waves will ſoon beat it to pieces.

But a ſhip is ſubject to another calamity, that of ſtorm or tempeſt. In the fineſt weather, when the ſailors hearts ſing as it were for joy, and the veſſel is chearfully ſcudding before the wind, in a few hours the day ſhall be overhung, the clouds ſhall lower, the thunder roar, the winds ſhall blow, and ſuch a tempeſt ſhall come on, as no human being can guard againſt. The only chance of eſcaping the danger of being overſet and ſunk, or being driven on a rock or ſhore, is that of taking down the ſails, cloſing every hatch or doorway, and committing themſelves to the mercy of the waves; and after all, if Providence does not abate the ſtorm, the ſhip may founder and ſink. In theſe unhappy ſituations, ſome few of the men will quit the ſinking veſſel, and jump into the water, with a beam a tub, or any thing that will ſwim, and keep them floating. But, where this has ſaved one man, by directing him on ſhore, or keeping him from drowning, till chance has brought ſome other ſhip near him, that ſhall pick him up; it has been the means of prolonging the miſeries of many: for without proviſions, they have been ſome hours buffeted by the billows, or waves, that in ſome tempeſtuous weather, run mountains high; and, at laſt chilled with cold, ſpent with fatigue, and diſpirited with fear, they have found relief only in death, and a watry grave.

When ſuch are the diſaſters and dangers of the ſea, how much ſhould we reſpect thoſe brave fellows, who encounter theſe dangers, as do ſeamen in the defence of their country; and, how much does it behove ſuch men to lead a good life, that Providence may ſtand their friend; and ſhould ſuch a dreadful accident happen to them, they may be prepared to meet their God in the next world, without the dread of future puniſhments!

FAMINE.

FAMINE.

AS it has pleaſed our Creator to fill us with abundance, and bleſs us with the good things of thi life, ſo has it pleaſed him at times, to puniſh the ingratitude of men, by withholding his hand, and taking theſe good things from us. By making the earth fruitful, by watering it with the dews of heaven, and cauſing the ſun to ſhine upon it, "He giveth us plentiously all things to enjoy." "He giveth food to the cattle, and green herbs for the ſervice of men." He cauſeth animals to increaſe, and we have food in plenty. Such are the bleſſings of life, that we are able to gratify our appetites without work or any dread of want.

It is by food that the life of man is preſerved, and prolonged. Deprive him of meat and drink, and he ſtarves and dies. Hunger and thirſt are thoſe cravings of nature, that urge and impel us to ſeek for food, and thus preſerve a life, we might otherwiſe be indifferent about. It is this that taught men the art of hunting, and catching wild beaſt, the method of taming them, and all the knowledge of huſbandry.

To procure bread, we till the land; to provide ourſelves with meat, we breed and rear cattle; but all our labours would be fruitleſs, if it pleaſed God to counteract them. "Paul may plant and Apollos water, and all to no purpoſe, unleſs God gives the increaſe." Our dependance is wholly upon him: and of him are we to aſk our daily bread.

When the Almighty as a puniſhment for man's tranſgreſſions, has ſcattered dearth upon the land; when he has thought proper, to withhold the rain, and ſuffer the ſun to ſcorch up the earth, or when it has pleaſed him to give us too much rain, and drown the fruits of it; famine has enſued, and all the train of evils attending her; wretchedneſs, diſeaſe and death.

Such has been the calamity on board a ſhip, when men have been longer out at ſea than they expected, and their proviſions have run ſhort and failed them; I ſay ſuch has been the calamity, that for want of food, they have been under the neceſſity of drawing lots to determine, which of them ſhould be put to death, by way of food for the reſt. For nature has implanted in us ſuch a love for life, that we would run any lengths to preſerve it. If ſo dreadful then is the caſe, among a ſhip's crew, where proviſions run ſhort, how much more dreadful muſt a famine or a general want of food be, throughout a whole country!

The calamity cannot be more lively deſcribed than in the ſcene before us, where men floating upon the water are famiſhing for thirſt; and others, ſtarving with hunger, are feeding on a horſe, that died for want of food. Diſtreſs and anguiſh, are painted in their faces, and, they are made to feel their dependance on their Maker.

This ſcene is ſtill heightened, by God's relenting. He has not given them up wholly to deſtruction, but

" in his anger, thinketh upon mercy." Not willing to cut them off entirely from the face of the earth, he bids the famine to ceaſe, cauſeth rain to fall from heaven, to water the land, and quench the parching thirſt of men, which the ſalt waters of the ſea is incapable of doing; and, throws the carcaſe of an animal in their way, to ſave them from death.

From this leſſon we are taught not to preſume on our own ſufficiency, but to be ſenſible of our dependance on God. He it is, to whom we owe all that we have! "The Lord giveth and the Lord taketh away, bleſſed be the name of the Lord!" How little reaſon then have men to be proud of their wealth, or vain of their poſſeſſions; when a chilling blaſt, a dry ſeaſon, or a mildew, ſhall throw them into the ſituation we here behold. If food is not to be procured, or purchaſed, of what uſe is wealth? Man can neither eat his ſilver or his gold, and of courſe muſt ſtarve in ſpite of all his riches.

Thoſe who are better fed than taught, the nice and daintiful may alſo learn, from this ſcene, the abſurdity of rejecting meat, becauſe it is not palatable and exquiſite. When hunger preſſes, the palate yields, and he who with a full ſtomach, will turn up his noſe at plain and unwholeſome food; let him but experience the wants of the diſtreſſed, feel a little of their hunger, and he will bluſh at his own folly, and be aſhamed at his unthankfulneſs.

PESTILENCE.

PESTILENCE is ſtill another ſcourge of Heaven, upon the wicked. This is diſeaſe, mortality and death. It has pleaſed God ſometimes to puniſh the ſinfulneſs of men, by ſending ſickneſs among them and cutting them off by thouſands. Such general ſickneſs is called Epidemical;it will often rage throughout a whole diſtrict and has thus clothed a whole country in black.

In the year 1666,that is about 130 years ago, ſuch a mortal ſickneſs raged in London, that in a few months died a third of the inhabitants. This was called the Plague; it baffled the ſkill of all the phyſicians, and ſo ſudden, and general were the deaths, that few were left to bury the dead. They were brought out of the houſes ſeveral at a time, and carried away in carts.

A proof this, that tis in vain when ſick, to apply to a phyſician for a remedy, unleſs it ſhall pleaſe God, to reſtore us. He is Lord of life and death, and to Him we ſhould firſt apply, and beg a bleſſing upon the endeavours of the phyſician; in ſuch a caſe, we may hope for a cure; but without it, an application is little leſs than preſumption.

THE EFFECTS OF IMAGINATION.

ONE of the greateſt puniſhments of Heaven, inflicted on ſinful man, is the terrors of a wounded mind. God has implanted in our breaſts, a ſure monitor, that approves our actions when we do right, and condemns them when we do wrong; and no rational man need make any enquiries into the rectitude of his conduct; his conſcience will be his beſt examiner, and his beſt judge.

We are told in ſcripture-hiſtory, that when Cain killed his brother Abel, his ſin was more than he was able to bear, and he flew from reflection, as a man would fly from his greateſt enemy. "The wicked" ſays the Pſalmiſt "fleeth, when no man purſueth". Conſcience ſtings him for having done wrong, and the ſting it leaves is intolerable.

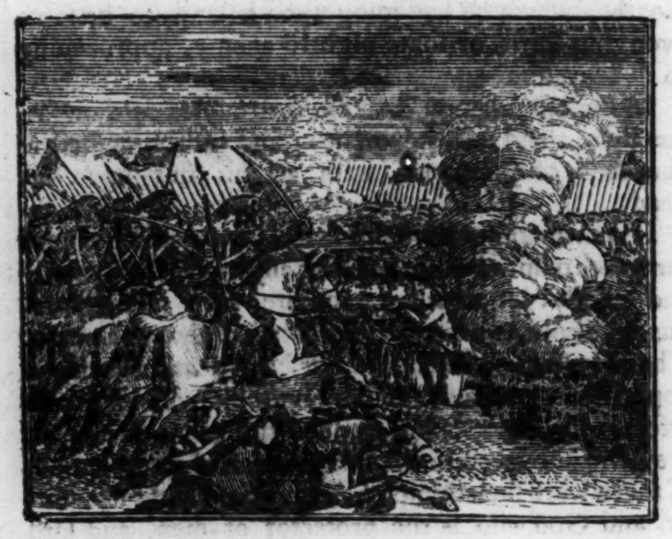
The murderer is frighted at his own ſhadow, and the robber is always thinking officers of juſtice are after him, to apprehend him. Whatever may be the crime of the man before us, is of no great moment, it is ſufficient that it diſturbs his quiet, robs him of his reſt, and keeps him in alarm. Evil ſpirits are continually before his eyes, and he is in dread of the avenging hand of the Almighty. The cat puſhing into his chamber-window, throws down the bell, wakes him in an alarming dream, and with all that fear naturally attendant upon crimes, his troubled mind will not ſuffer him to recollect himſelf, and he conceives his cloaths, which he had hung upon a ſtand, to be ſome avenging ſpirit, or ſome nightly enemy, approaching to deſtroy him.

Many an unhappy wretch, ſo troubled in thought, has put an end to his exiſtence; and raſhly, ruſhed to the ſeat of judgment, with all his ſins upon his head.

If we would not have this fear; if we would not have our peace of mind diſturbed, but enjoy ourſelves calmly and quietly, let us live a good life, for "the righteous is as bold as a lion;" his mind is always at eaſe. The ſilly ſtories, which old nurſes and others tell, of apparitions, and evil ſpirits, inviſible, will loſe their effect; for there being no ſuch things in exiſtence, they will not dwell in the imagination of a good man. If there were ſuch things, Good ſpirits would not hurt us, and God who is the protector of men, and lord of the univerſe, would not ſuffer any Evil ſpirit to do-us any harm. In ſhort, the fact is, theſe are creatures merely of the fancy; and, it is the wicked, and the weak only, that are afraid of them.

True courage is the pride and boaſt of men; and the way to be truly courageous, is to have no dread of death, or the ſpirits of the other world. Live a good life; this will make a ſoldier brave, and a chriſtian fearleſs; for as death will reach us ſooner or later, when we are always prepared to meet it, the more unexpected it comes, the leſs trouble it will give: we ſhall lay down our heads compoſedly on the pillow, and our departure from this life, will be little more than a ſleep, which the pious man enjoys, and the ſinner only dreads.

BATTLE.



I HAVE had occaſion, in the courſe of this work, to obſerve, that from the natural ſelfiſh diſpoſition of mankind, which leads them to incroach upon and make free with the property of others, it was neceſſary to enact laws to bind them to honeſty, and to puniſh thoſe who ſhould preſume to take from others what they have no right to. This gave riſe to governments; but, though laws and puniſhments may keep individuals in order, they are not ſufficient to reſtrain great bodies of men, when they think proper to oppoſe them. It has been found neceſſary, that government therefore ſhould keep a number of ſoldiers or armed men, in conſtant readineſs, to quell any inſurrection, or riſing of the people; and, this body of men is called an Army. They are trained up to arms, and are maintained at the expence of the ſtate.

It has often happened in this country, as well as in others, that the people have taken it into their heads that they have been oppreſſed by taxes, by the dearneſs of proviſions, and other cauſes; and have therefore armed themſelves, and united in one body, to oppoſe the ſtate. In ſuch caſes, the ſoldiers are collected and march out to quell them; and if they did not lay down their arms, a civil war would enſue, and a battle would be the conſequence. But the ſoldiers being trained to arms, are, for the moſt part, too powerful for the reſt of the people, and generally ſubdue, and overcome, them.

But this is not the only uſe of an army; as all ſtates have armies, one ſtate will ſometimes incroach upon, or invade the territory or kingdom of another; that is, one king will make war with another; in which caſe, the armies of ſuch kingdom or ſtate, will march out and meet each other, in ſome open place, and there try which is moſt powerful, by fighting; and that army that keeps its ground the longeſt, is ſaid to conquer.

The more populous a kingdom is, the more numerous is its army. The army of England, is not leſs than 100,000 men. Theſe are all under the command and direction of their ſeveral officers, and the whole body united, is ſubject, in time of war, to the controul of one man, who is called the Commander in chief.

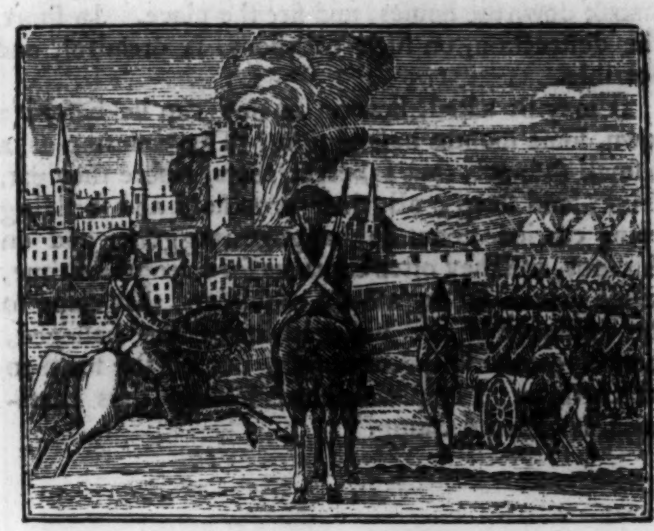
When two armies meet, to fight, the ground on which they ſtand, is called the Field of battle. They firſt attack each other, with cannon, firing great iron balls; then with their muſquets, which carry leaden bullets, and after this with their bayonets, which is a ſword, fixed at the end of their muſquets. If one army gives way, the other purſues, and kills all it can; if one army ſurrenders, and the men lay down their arms, they are immediately taken priſoners by the enemy. It is not an uncommon thing, after a battle, to ſee twenty or thirty thouſand men lie dead upon the field.

When an army marches out againſt its enemy, if not oppoſed, the ſoldiers would enter that enemy's country, ravage it, and plunder the inhabitants of their wealth; it is neceſſary therefore, to keep an army to oppoſe ſuch hoſtilites.

The army is ſaid to be a good ſchool for young men, and why? becauſe they are there taught ſubmiſſion to their ſuperiors. If a ſoldier is commanded by one above him, to do any thing, he does it, nor does he aſk the reaſon why; it is ſufficient to him, that he has received orders. If theſe orders are wrong, the ſoldier is not anſwerable for the wrong, but the perſon who gave him the orders. A young man ſo bred up, will not preſume to diſobey thoſe under whom he acts, but implicitly act, as he is directed. So ought a child to act, when under the command of his parents, or governors. They are ſuppoſed to be the beſt judges of what he ought to do, and his duty is implicitly and conſtantly to obey them, leaving them to be reſponſible and accountable for the propriety of their orders.

In every kingdom, there are particular towns where magazines of warlike ſtores are kept for the uſe of the army, and theſe towns the ſtate finds it neceſſary to fortify, and defend by walls and ditches, againſt an enemy; that ſhould a numerous army approach theſe walls or fortifications to attack them, a few ſoldiers within the fort, or fortified town, may be able to defend themſelves againſt it. The ſoldiers, and inhabitants in the garriſon, or fort, are called the Beſieged, the army without, the Beſiegers, and the attack, is called

A SIEGE.



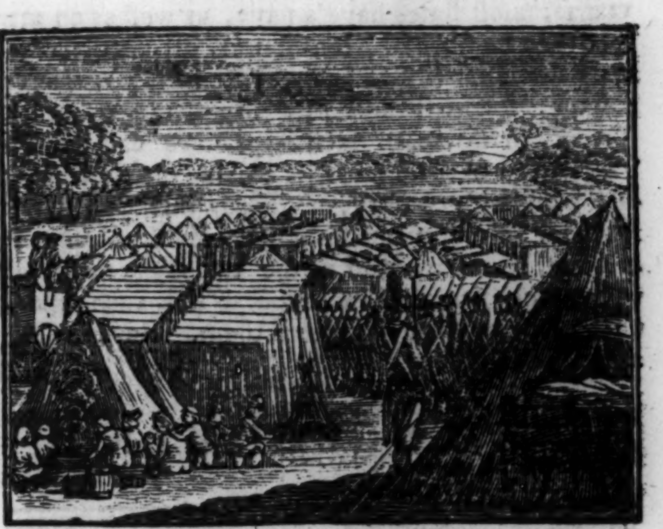
If the beſiegers can ſurround the town, and block it up, ſo as to prevent any proviſions being carried in; in the courſe of a few months, all the proviſions ſtored up in ſuch a town, will be conſumed ; and, the people muſt either ſurrender, or be ſtarved to death. This the beſiegers endeavour, if they can, to bring about ; if not, they will endeavour to batter down the walls, with their cannon, and enter the fort, ſword in hand. This is called Storming a fort ; and, if they can thus conquer a fort, they are ſaid to Take it.

Till they can accompliſh this, the beſieged and the beſiegers attack, and annoy each other, by bombs, which are hollow,iron balls,filled with combuſtible or fiery matter; theſe being thrown from mortars, a kind of cannon, by the force of gunpowder, over the walls among the enemy, will, when they fall, burſt, blaze out, burn and deſtroy every thing within their reach. Sometimes red-hot balls are fired from cannon, and theſe with the bombs thrown into a town, will often knock down the houſes, and fire the place. In ſhort, the deſtruction, on ſuch occaſions, is dreadful, and horrible.

It may be aſked, how an enemy can lie before a town, ſome months beſieging it ? They encamp at a a ſmall diſtance, that is, erect tents, where they eat, drink, and ſleep ; all their proviſions and bedding being carried about in baggage-waggons: and on this ſpot, will they often continue for a length of time, unleſs driven off by a body of ſoldiers, that come to the aſſiſtance of the beſieged, or by the beſieged, themſelves who ſally, or march, out of the town to attack them. The place where an army thus continues, is called a Camp.

A CAMP.

A CAMP.

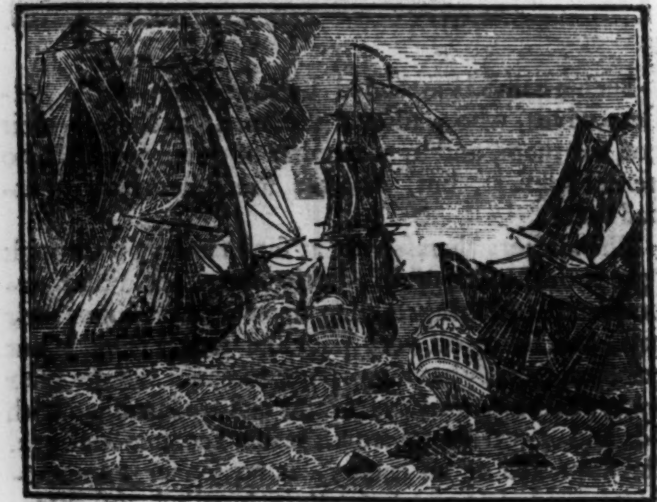


Such a camp is attended by a number of the ſoldiers wives, who waſh for the men, and dreſs their food for them, and by a number of other people, who are not ſoldiers, but, who are found neceſſary to attend them.

The ſoldiers themſelves, at ſuch times, go through a great deal of hardſhip ; little ſleep, cold and uncomfortable lodgings, lying upon ſtraw within their tents, and living on very poor and ſcanty food ; but the officers moſtly having private fortunes, beſides their pay, are accompanied by ſervants and are furniſhed with beds and a variety of comfortable accommodations. The approach of an enemy, is no ſooner announced, or made known, but all is bundled up, clapt into a waggon, wheeled off the ground, and they are quickly ready with their arms, to make a ſtand in their defence.

Since the introduction of commerce, by ſhipping, nations have found it neceſſary to protect this ſhipping, from the plunder of an enemy at ſea. Of courſe, moſt ſtates have a navy, as well as an army; that is, a number of Men-of-war, or, battle-ſhips, in their ſervice. Theſe are very large ſhips, that carry cannon, ſoldiers, and other implements of war. Twenty or thirty of ſuch ſhips, are called a Fleet. The deſign of theſe ſhips, is to ſeize the trading ſhips of the enemy's country, or deſtroy thier towns by the ſea-ſide. To prevent this, the enemy ſends out a fleet of ſhips, like ours, and if the two fleets meet, they will attack, fire, and endeavour to ſink each other, or take a part of their ſhips from them. Such a battle at ſea, is called,

AN ENGAGEMENT.



The balls that fly about on theſe occaſions, make holes in the ſails, and thus diſable the ſhips from ſailing, batter the ſides, and let in the water, to ſink them; kill the men within, or ſet fire to to the ſhip, and blow it up: for ſhould ſuch fire reach the magazine of gunpowder within that ſhip, it will go off all at once with an exploſion, and blow the ſhip, and all the people in it, to ſhatters. Such is the deſtruction of a naval fight.

Indeed, war may be conſidered, as one of the judgments, or puniſhments of Heaven, upon a ſinful people. When the iniquities of a nation, have gone on to an uncommon pitch or height, it has pleaſed God, to ſtir up the minds of ſuch people, to make war with others, and ſuch a war, laſting a number of years, has impoveriſhed and depopulated a whole country, beyond the power of a thirty years peace to recover.

THE SAGACITY OF ANIMALS.

SUCH is the wiſdom of the Creator, that, in the formation of animals, he has given each ſpecies or ſort, a certain degree of underſtanding, ſufficient for their uſe, and their comfort. This underſtanding to diſtinguiſh it from reaſon, with which man, the ſuperior animal is endowed, is called *inſtinct*. The Aſs is ignorant of ſcience, the bird of paſſage of calculation; yet, by inſtinct, the one will foretel a change of weather, and the other will quit this country, before the approach of winter, and make its way to a warmer clime. By inſtinct, animals feed, bring up, and protect their young. By inſtinct, the beaſts of the fields eat certain graſſes and herbs, and the birds pick up ſtones, to relieve themſelves from certain diſorders, to which they are naturally liable; and by inſtinct, they guard their ſafety, in caſes of danger. By inſtinct, the beaſts of the foreſt, prowl about for prey; that is, wander in ſearch of certain animals, on which they feed; and, by inſtinct, ſuch animals ſeek their protection, by flight and by art. The tyger ſquats in ſecret, to jump upon the timid hare, as does the cat, to ſeize upon the unguarded mouſe; but, on the other hand, the hare is gifted with long ears, by which, laying them down upon its back, it is enabled to hear the coming of the enemy, at a great diſtance; and the mouſe is by nature taught to ſmell the approach of the cat. The hound we have ſeen is endued with a power of ſmelling, by which it can trace a hare to its ſeat, or place of reſidence, by the ſcent of its foot upon the ground; and the hare, ſenſible of this, to avoid it, will, before ſhe reaches her ſeat, leap over the ground, by continued jumps, that her enemy may not be able to trace her out by the ſcent of her foot. So that, if God has given one animal power over another, it has at the ſame time provided the other with a means of eſcaping, if it be ſufficient on its guard.

But, in the great variety of creatures, God, in creation, has given to ſome animals a greater degree of inſtinct, or ſagacity, than to others, and perhaps to make them more uſeful to man, for whom they were made. The horſe has more ſagacity than the ox, that he may be able to comprehend the will of his maſter, and obey his commands. He is often directed by the voice of his driver, to quicken or ſlacken his pace, and turns to the right or left, in obedience to the commands he receives. Dogs will do the ſame, and, it is thus they are trained up for ſport, and for the exerciſes of the field. We ſee here before us, a dog taught to carry a bundle, and another to run into the water and fetch a hat, blown from off a ſchool-boy's head.

The elephant, we are told, comprehends or underſtands almoſt every thing its keeper ſays to it, and it has been hence called the half-reaſoning elephant; and, the beaver has ſuch an extraordinary ſhare of underſtanding, that a number of them will live together, like men, in ſociety; will build themſelves houſes, will, with their teeth, cut down trees for the purpoſe, contrive to convey them to the place where they erect their houſes, plaiſter thoſe houſes with mud, uſing their tail for a trowel, or plaiſtering tool; nay they will go farther, one will lay down on his back, as is here ſhewn, holding his feet upright, and ſuffer himſelf to be loaded with proviſions between his legs, as on a cart, and thus loaded, permit others to drag him along, to their ſtore-houſes.

Whoever has examined a bird's neſt, muſt ſtand amazed at the ingenuity, with which it is conſtructed. No art of man has ever yet been able to form one like it. Such is the power of natural inſtinct, that it often exceeds the power of reaſon.

But man, by his exertions, has, by a kind of education, taught ſome animals to perform wonderful things, and make their ſagacity wear the appearance of reaſon. Monkeys have been taught to wait at table, dogs to fetch and carry, bears to dance, horſes to jump through hoops ſuſpended in the air, birds to fire guns, and the like; and, what are ~~we~~ learn from all this? not only to train up animals to our uſe,but,that as we ſee,from this improveed ſagacity, how far teaching is able to perform; we are to to learn how unpardonable it is in men, to neglect his own education: for, if a dog, can, by practice, be taught to do things that excite our admiration, how much more is the mind or underſtanding of man, capable of excelling things that exceed his conception? The infant mind may be taught almoſt any thing. Education includes ſuch things, as tend to its uſe, and to its happineſs; and thoſe headſtrong, ungovernable youths, that oppoſe inſtruction, and ſet themſelves againſt information, are not half ſo reſpectable in the eyes of the world, as a ſagacious dog, or a well taught monkey.

It has been the ſtudy of the Author of this work, to give youth a juſt conception of every thing in life, to endeavour to cheat him into knowledge by amuſement; and, having ſo done, he muſt be indulged with the liberty of ſaying, that if all this will not do, there is a perverſeneſs in his mind, that wilſully ſhuts out improvement, and places him ſeveral degrees below the brute creation.

MVSEVM
BRITAN
NICVM